The Dissertation Committee for Stephanie Katherine Paulos Certifies that this is the approved version of the following dissertation:

Examining the Roles of Family Environment and Internalizing Symptoms on Early Adolescent Social Aggression: A One-Year Longitudinal Study

Committee:

Timothy Z. Keith, Supervisor

Alexandra Loukas, Co-Supervisor

Cindy I. Carlson

Margaret Semrud-Clikeman

Marilla D. Svinicki

Examining the Roles of Family Environment and Internalizing Symptoms on Early Adolescent Social Aggression: A One-Year Longitudinal Study

by

Stephanie Katherine Paulos, B.A.; M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August 2007

DEDICATION

I dedicate this project to my parents for giving me opportunities that they never had, for supporting me in the pursuit of my goals, and for helping me to believe that I can accomplish anything.

ACKNOWLEDGEMENTS

I would like to first and foremost acknowledge my committee members for guiding me through the stages of this study with their individual areas of expertise. Words cannot express my gratitude for the mentorship of Dr. Alexandra Loukas and Dr. Timothy Z. Keith, both of whom are not only exceptional teachers, but embody the best characteristics of the human spirit. I would like to acknowledge the exceptional faculty of the UT School Psychology Program for investing themselves in my training for the last 5 years. Your passion and commitment to teaching continue to inspire me. I would also like to thank Dr. Margaret Semrud-Clikeman, Dr. Nancy Nussbaum, and Dr. David Tucker for inspiring me to pursue a career in neuropsychology. I thank them for their supervision, encouragement, and support throughout my training. I also acknowledge my fellow students, many of whom became dear friends, for their contributions to my training experience. I am and always will be proud of my training at UT. Finally, I would like to acknowledge the unwavering encouragement and dear friendship of Michelle Greenberg, the one who keeps me sane and continues to keep me in check.

Examining the Roles of Family Environment and Internalizing Symptoms on Early Adolescent Social Aggression: A One-Year Longitudinal Study

Publication No._____

Stephanie Katherine Paulos, Ph.D.

The University of Texas at Austin, 2007

Supervisors: Timothy Z. Keith and Alexandra Loukas

Much research has recently been directed at social aggression, which includes subtle and covert behaviors intended to harm the target. Evidence indicates that social aggression is associated with social maladjustment such as peer rejection and internalizing and externalizing problems. Despite increasing interest by researchers on the consequences of this form of aggression, relatively few studies have examined the etiology of social aggression. Previous research has demonstrated that depression and social anxiety may predict social aggression, however little research has examined the role of the family system in contributing to the development of this maladaptive behavior.

Using path-analytic techniques, this study examined how family factors (parent-adolescent conflict, positive family relations, and maternal psychological control) affect subsequent social aggression one-year later after controlling for baseline levels of social aggression. Individual symptoms of depression and social evaluative anxiety were also

incorporated in the model to determine if the effects of the family variables on later social aggression were mediated by the individual emotional adjustment of a child. Using competing models, this study compared model fit across boys and girls. The stability of social aggression over a 1 year period was also examined using confirmatory factor analysis techniques. Participants included in this study were 497 10- to 14-year-old middle school students.

Results suggest that social aggression is a stable and chronic difficulty for boys and girls over a one year period. Positive family relations significantly negatively effected social aggression over the course of a year, above and beyond baseline subsequent levels of social aggression, for girls. Additionally, parent-adolescent conflict, positive family relations, and maternal psychological control were significantly related to baseline levels of social aggression. This study corroborated previous research on the deleterious effects of parent-adolescent conflict, less positive family relations, and maternal psychological control on depressive symptoms for both boys and girls. Additionally, positive family relations were also shown to reduce social evaluative anxiety for both boys and girls. Findings from this study emphasize the need for prevention and intervention efforts directed at the family system for improved adjustment of early adolescents.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

Introduction

Aggression has been consistently linked to negative individual and interpersonal outcomes in children and adults. Aggression has been primarily conceptualized as a problem manifested in boys' behavior, with fewer girls exhibiting extreme levels. A relatively new subtype of aggression has been recently explored that includes subtle and covert behaviors intended to harm the target. This type of aggression has often been referred to as social aggression and was initially conceptualized to demonstrate that girls can be aggressive contrary to the previous assumption that girls were the non-aggressive gender (Bjorkqvist, 1994).

Social aggression is defined as damaging one's self esteem, social status, or both, in ways that can be direct or indirect (Galen & Underwood, 1997). Social aggression includes relationally aggressive behaviors, like spreading rumors and social exclusion, and non-verbal tactics such as making negative facial expressions and gestures. Some researchers have shown that this form of aggression is more relevant for girls than for boys because it is more effective in causing harm to girls' peer groups (Bjorkqvist, Lagerspetz, & Kaukiainen, 1992; Coyne, Archer, & Eslea, 2006; Crick, 1997; Crick & Grotpeter, 1995; Murray-Close, Crick, & Galotti, 2006). That is, when attempting to inflict harm on peers, children tend to engage in behaviors that are most likely to damage valued goals. Because girls typically focus on relational issues during social interaction, acts that harm social connections are likely to be particularly effective in girls' peer groups. However, some researchers have found no gender differences in the use of social aggression (Coyne et al., 2006; Galen & Underwood, 1997; Loukas, Paulos, & Robinson,

2005; Prinstein, Boegers, & Vernberg, 2001) and some studies have shown that males are more socially aggressive than females (Loudin, Loukas, & Robinson, 2003; Tomada & Schneider, 1997). Despite inconsistencies in gender differences, this more subtle form of aggression has been shown to be just as hurtful to victims as physical aggression (Underwood, Galen, & Paquette, 2001). This type of aggression has also been associated with poor interpersonal functioning and psychological maladjustment. Research has repeatedly shown a connection between social aggression and peer rejection, and internalizing and externalizing symptoms (Crick, 1996; Crick & Grotpeter, 1996; Murray-Close, Ostrov, & Crick, 2007; Rys & Bear, 1997). However, the etiology and maintenance of this subtype of aggression has not been thoroughly studied.

Loeber and Stouthamer-Loeber (1998) proposed that the development of aggression and antisocial behaviors in children may be more complex than researchers originally thought and that multiple pathways to aggression may fit equally as well as a single pathway. They also stated that gender largely influences how aggression evolves, which may be particularly true for social aggression. Cummings (1994) has theorized that a stressor model may be at work when examining family environment and the development of aggressive behavior. This literature suggests that exposure to background anger in coercive and less responsive parenting styles is emotionally and physiologically arousing for children. Such familial environments seem to lower thresholds for emotional regulation and stimulate angry cognitions and feelings of hostility that may manifest in increased aggression towards peers (Coie & Dodge, 1998). It is clear that more research is needed to understand the development of socially

aggressive behaviors and how this developmental course is influenced by gender, family factors, and individual psychological adjustment.

Many researchers have applied the social information-processing theory (SIP) to social aggression when attempting to understand why some children use social aggression (Crick, 1995; Crick, Grotpeter, & Bigbee, 2002). The SIP theory conceptualizes aggression as the result of deficient processing at one or more steps that occur before engaging in social behavior (Crick, 1995; Crick & Dodge, 1994; Crick & Ladd, 1990; Dodge & Crick, 1990). Much research has been directed at step 2 of the SIP theory, where aggressive children perceive hostile intent in benign interpersonal situations. Crick (1995) found that socially aggressive children attributed hostile intent to provocateurs in relational provocation situations significantly more than their non-aggressive peers. One of the emotions hypothesized to contribute to faulty processing at this step has been social anxiety. Crick and Dodge (1994) claim that negative emotions (such as anxiety) leading to increased arousal, can alter children's accuracy in making social interpretations. The interpretation of a peer's intent as hostile may lead to further feelings of fear or anxiety. According to Watson and Friend (1969), individuals highly fearful of negative evaluation, a component of social anxiety, tend to be overly concerned with others' evaluations. As a result, these individuals tend to assume that they are being negatively evaluated, even when they are not (Watson & Friend, 1969). One study showed that elevated levels of social anxiety, specifically social evaluative anxiety, are positively associated with concurrent levels of social aggression (Loukas et al., 2005). However, no other studies have examined this relationship further.

In addition to dispositional qualities, like social evaluative anxiety, family factors also may contribute to the use of social aggression. There is a large literature base examining the contribution of family factors to overt aggression and antisocial tendencies. Familial conflict, little positive parental involvement, parental psychological control, and les family cohesion have been shown to be positively related to overt aggression (Crick, 2003; Coie & Dodge, 1998; Dishion, 1990; Loukas et al., 2005, Patterson, DeBaryshe, & Ramsey, 1989). Coercive family processes where children learn antisocial behavior patterns from maladaptive interactions with their parents have been empirically shown to predict overt aggression, antisocial behaviors, and depression (for girls only) (Compton, Snyder, Schrepferman, Bank, & Shortt, 2003; Leve & Fagot, 2001; McFadyen-Ketchum, Bates, Dodge, & Pettit, 1996; Patterson, 1982). Little research, however, has been conducted to determine the influence of family process on social aggression.

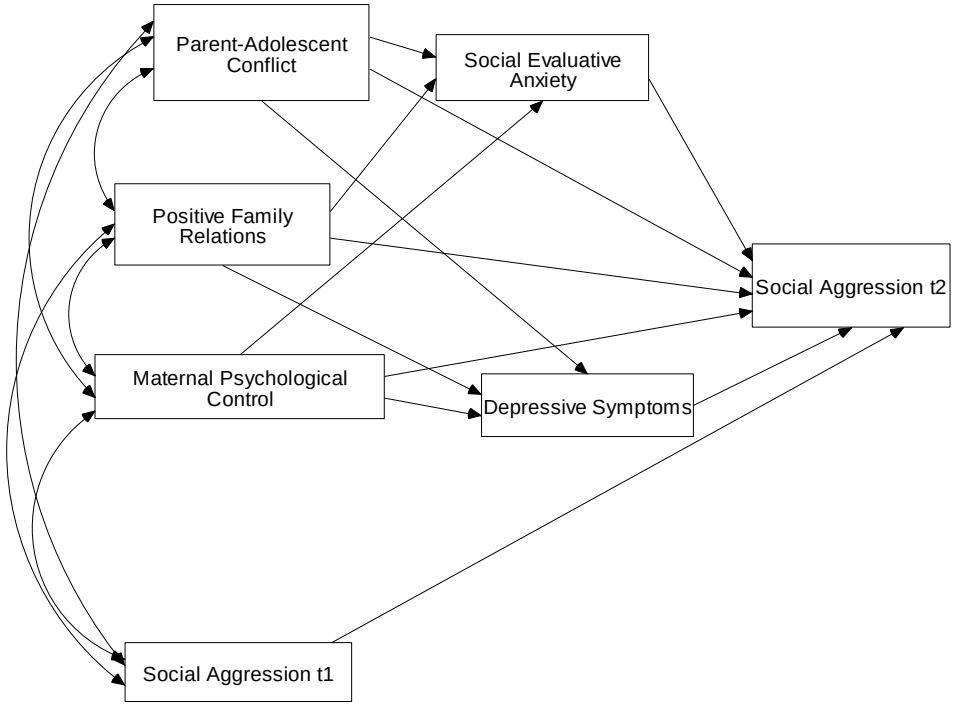
Theories drawn from the overt aggression literature have been borrowed in an attempt to explain socially aggressive behaviors. Crick et al. (1999) have theorized that children may learn socially aggressive behaviors through observation of their parents' socially aggressive behavior in the marital relationship and in the parent-child dyad. The children then model the behavior in their own relationships with their peers. Grotpeter and Crick (1997, as cited in Crick et al., 1999) provided evidence to support this theory in a study that found socially aggressive children to have parents who are both overtly and socially aggressive toward each other. Children who were both overtly and socially aggressive had parents who were socially aggressive toward their children.

Another family factor examined in relation to social aggression is maternal psychological control. According to Barber (1996), parental psychological control includes behaviors that focus on controlling the child's psychological world such as withdrawing love or constraining verbal expressions. Parental psychological control is particularly important in early adolescence given the developmental tasks of increasing autonomy and identity development (Barber, 1996). Parental psychological control has been linked to internalizing symptoms, particularly depression and anxiety, and externalizing problems (delinquency) in children (Barber, 1996; Barber & Buehler, 1996; Siqueland, Kendall, & Steinberg, 1996). A few studies have examined the relationship between psychological control and social aggression; however, most of these studies were on younger children (Crick, 2003; Hart, Nelson, Robinson, Olsen, and McNeilly-Choque, 1998; Nelson & Crick, 2002). In one study maternal psychological control predicted 10 to 14 year old girls and boys social aggression, although this effect was mediated by social evaluative anxiety for girls (Loukas et al., 2005).

The present study examined the role of family factors such as, parent-adolescent conflict, positive family relations, and maternal psychological control on the subsequent social aggression of early adolescents measured one year later after controlling for baseline levels of social aggression. As shown in Figure 1, self-reported symptoms of depression and social evaluative anxiety were also incorporated in the model to determine if the effects of the family variables on subsequent social aggression were mediated by the individual emotional adjustment of a child. Due to inconsistencies in gender differences and social aggression in the literature, separate models were evaluated for boys and girls. The stability of social aggression across a one year time period was also

examined. If these problems prove to be stable, as suggested by the literature on overt aggression, it is possible that without intervention, socially aggressive children are likely to remain aggressive over time (Crick, 1996). The purported findings would provide additional information regarding the etiology and maintenance of social aggression. Knowledge of pathways to social aggression can influence intervention in several ways. Determining where an individual is located on a pathway would indicate not only present problems, but also problems that may follow so that there may be an attempt at prevention. Additionally, knowledge of the pathways to social aggression can help in the evaluation of interventions. Successful intervention appears to be possible for overtly aggressive preadolescents (Patterson et al., 1989), so it is necessary to understand this subtype of aggression so interventions can be developed and attempted.

Figure 1. Initial path-analytic model: Influence of parent-adolescent conflict, positive family relations, maternal psychological control, and symptoms of social evaluative anxiety and depression measured at wave 1 on changes in wave 2 social aggression after controlling for the effects of wave 1 social aggression.



CHAPTER 2

Review of the Literature

This chapter provides an overview of research conducted on social aggression, focusing on individual and family variables leading to the increased occurrence of social aggression. An understanding of this subtype of aggression is important, therefore definitions, population considerations, measurement issues, gender differences, cross-cultural differences, psychosocial correlates, and other maladjusted behaviors in relation to social aggression are discussed. Research on the cognitive theories explaining social aggression, with focused discussion on social information-processing, are reviewed. Research on family factors contributing to overt aggression will also be reviewed due to the sparse empirical data on how family relationships affect social aggression. This study explored the role of depressive symptoms and social evaluative anxiety as mediators of the relations between parent-adolescent conflict, positive family relations, maternal psychological control and subsequent social aggression one year later.

Introduction to Aggressive Behavior

Researchers have proposed over 200 different definitions of aggressive behavior, most of which have two common features: the behavior is intended to harm and the behavior is perceived as hurtful by the target (Harre & Lamb, 1993). Aggression has been linked to social maladjustment in children and adults throughout the literature. Aggression in children has been linked to a variety of social, behavioral, and emotional difficulties, as well as peer rejection (Coie & Dodge, 1983; French & Wass, 1985). The high prevalence rates of aggression have led researchers to believe that aggression is serving some function for the perpetrator and, in the case of social aggression, for others

in the peer group (Crick, 1995; Crick & Ladd, 1990). Research has been conducted primarily on physical and/or overt aggression. Males have been the primary participants of overt/physical aggression studies due to the substantially smaller number of females that engage in these forms of behavior. Therefore, it has traditionally been concluded that females are the non-aggressive gender (Bjorkqvist, 1994).

Recently researchers have begun to examine females and their use of aggressive strategies. Evidence has shown that females tend to use different forms of aggression than do males. As opposed to overt aggression, females tend to use covert forms of aggression, such as indirect aggression (Bjorkqvist et al., 1992), relational aggression (Crick, 1996; Crick & Grotpeter, 1995), or social aggression (Cairns, Cairns, Neckerman, Ferguson, & Gariepy, 1989; Galen & Underwood, 1997). Girls likely use these forms of aggression because they are more likely to be effective in their peer groups. More specifically, Crick and Grotpeter (1995) propose that when attempting to inflict harm on peers (i.e., aggressing), children tend to engage in behaviors that are most likely to damage valued goals. Because girls place value on relational issues during social interaction (e.g., establishing close, intimate connections with others), behaviors that harm social connections are likely to be particularly effective in girls' peer groups (Block, 1983; Crick & Grotpeter, 1995). In contrast, overtly aggressive behaviors such as, hitting, pushing, and verbal threats are likely to be more meaningful and effective in boys' peer groups as they damage social goals that have been demonstrated to be particularly salient for boys (i.e., instrumental and dominance-oriented goals; Block, 1983). It is understandable that the more subtle forms of aggression characteristic of girls have not been studied as often as physical and/or overt aggression because these

behaviors are not readily accessible to an outside observer. However, these covert behaviors merit more research due to the fact that indirect/relational/social aggression has been shown to cause comparable short- and long-term damage to the victims as physical aggression (Underwood et al., 2001).

What are Indirect, Relational, and Social Aggression?

Three terms have been proposed to describe similar expressions of aggression: indirect, relational, and social aggression. There are a number of overlapping characteristics in the definitions of indirect aggression and relational aggression, whereas, social aggression broadens the existing term of relational aggression. Indirect aggression is a term first used by a research team in Finland. Indirect aggression is defined as a kind of social manipulation: the aggressor manipulates others to attack the victim, or, by other means, makes use of the social structure in order to harm the target person, without being personally involved in the attack (Bjorkqvist & Niemela, 1992). Bjorkqvist's (1992). Indirect aggression scales consist of items such as "gossips, tells bad or false stories; becomes friend with another as revenge; and tells the other one's secrets to a third person."

Relational aggression is behavior intended to significantly manipulate or cause damage to another person's relationships or feeling of inclusion by the peer group (Crick & Grotpeter, 1995). Relational aggression includes behaviors that are indirect as well as direct, such as "when mad, gets even by keeping the person from being in their group of friends; tells friends they will stop liking them unless friends do what they say; and makes other kids not like a person by spreading rumors about them or talking behind their backs" (Crick & Grotpeter, 1995; Crick & Werner, 1998). The term relational

aggression has been used more frequently in the United States. Evidence from previous exploratory factor analyses support the validity of relational aggression as a distinct type of aggression. Factor analytic studies have shown two distinct but related factor solutions for overt and relational aggression (Crick, 1996; Crick & Grotpeter, 1995). However, these factors are found to be correlated with each other (e.g. $r = .54$, $p<.01$, Crick & Grotpeter, 1995; $r = .63$, $p<.001$, Crick, 1997), which continues to spark some debate among researchers about how distinct these forms of aggression really are from each other.

Galen and Underwood (1997) argue that the definition of relational aggression is missing other important forms of aggression. These researchers define social aggression as damaging one's self esteem, social status, or both, in ways that can be direct or indirect. Social aggression includes Crick's relationally aggressive behaviors, like spreading rumors and social exclusion, but the definition of social aggression also incorporates non-verbal tactics such as making negative facial expressions and gestures. These items have been shown through factor analytic studies to be correlated with the other relationally aggressive behaviors (Galen & Underwood, 1997). For instance, Galen and Underwood (1997) found that peer nominations for negative facial expressions were strongly positively correlated with peer nominations for relational aggression. Vignette measures including nonverbal examples of social aggression show high internal consistency (Galen & Underwood, 1997), and preadolescents report that the nonverbal forms of social aggression are experienced most frequently (Paquette & Underwood, 1999). Also, experiencing disdainful facial expressions and gestures uniquely contributes

to symptoms of depression and anxiety for adolescents, above and beyond other forms of social/relational aggression (Underwood et al., 2001).

Considerable debate exists among researchers about which term is the most appropriate to characterize these more covert, social forms of aggression. The term 'social aggression' is believed to be one of the earlier constructs proposed and it is thought to best capture and explain this form of aggression (Underwood et al., 2001). The term 'indirect' aggression does not include all of the behaviors that have been shown to be related to this construct in exploratory factor analytic studies conducted in the U.S. More direct types of behaviors, such as excluding someone from a group or ignoring someone, are included in the definitions of relational and social aggression. Therefore the term 'indirect' aggression is not the most appropriate for this construct (Underwood et al., 2001). The terms 'relational' and 'social' aggression are different from 'indirect aggression' because behaviors included in the former two constructs are more direct ('Tells friends they will stop liking them unless they do what they say', Crick & Grotpeter, 1995, p. 71). However, social aggression is the only construct that includes non-verbal behaviors. For the purpose of this study, the construct of social aggression was deemed the most inclusive and appropriate definition for this type of aggressive behavior and was the dependent variable of interest. For the duration of the paper, the term social aggression is used when referring generally to the type of aggression characterized by damaging one's self esteem, social status, or both, in ways that can be direct or indirect. However, for accuracy when reviewing relevant literature, the term used by the researchers conducting the study will be used. When studies have been

conducted using all three terms, it will be noted by including all three terms (indirect/relational/social aggression).

Social Aggression in Early Adolescence

Social aggression is particularly relevant to early adolescence for several reasons. First, during middle school, students spend greater amounts of time with their peers and increased importance is placed on the support received from peers during this stage of development. More specifically, prior studies have shown that during early adolescence interpersonal relationships intensify and friendships have increased self-disclosure, which provides aggressors with more ammunition to use when friendships fail (Parker et al., 1995). Therefore, it would make sense that socially aggressive behaviors could be more relevant and hurtful for this age group. In middle childhood, cliques also become more prominent and have more distinct boundaries set for who can be a part of the clique (Prinstein et al., 2001). Social forms of aggression may maintain and exacerbate these boundaries through ostracism, exclusion, or character assassination (Cairns et al., 1989). Moreover, as children increase in age, physical aggression may be replaced by indirect forms of aggression as a safer, more anonymous way to retaliate against peers (Bjorkqvist et al., 1992). Finally, more refined and hurtful use of social aggression is possible in adolescence due to cognitive advances, such as increased understanding and use of sarcasm and innuendo, as well as increased planning abilities (Prinstein et al., 2001).

Social aggression has been shown to be prevalent in children as young as preschool age and all the way up through adulthood, and findings indicate that social aggression is significantly related to social-psychological maladjustment (e.g. peer rejection) for all of these age groups (Crick, Casas, & Mosher, 1997; Crick et al., 2006;

Crick, 1996; Bjorkqvist et al., 1992; Loudin et al., 2003, Werner & Crick, 1999). Although social aggression is hypothesized to peak during early adolescence, (ages 10 – 14; Cairns et al., 1989), little is known about how developmentally normative or deviant socially aggressive behaviors are throughout the lifespan. A few studies have shown social aggression to be stable over time. In one study, Crick (1996) reported that intraindividual differences in relational aggression during middle childhood were highly stable and comparable to those for physical aggression over one-month and six-month intervals for boys (r = .86 and r = .56, respectively) and girls (r = .80 and r = .68, respectively). Werner and Crick (2004) indicated that intraindividual differences in relational aggression in 2nd through 4th grade children were moderately stable over a one year period. The researchers reported that the results were comparable to Crick's previous study (1996), but the correlations were not reported. Werner and Crick (2004) were quick to point out that, although some children's use of relational aggression remains relatively stable over time, more than 25% of children in their study showed marked increases in relational aggression (i.e., greater than 1 standard deviation above the average change score for all children), and almost the same percentage of children showed decreases of equal magnitude. Another study examining relational aggression in girls over the course of a year showed relational aggression to increase in a linear fashion (Murray-Close et al., 2007). In a study of preschoolers over an 18 month period of time, relational aggression was reportedly stable (Crick et al., 2006). The current study examined the stability of social aggression over a one year interval for boys and girls.

Measurement of Social Aggression

Research on indirect/relational/social aggression has been difficult to conduct due to the covert nature of this type of behavior, which is typically "under the radar" of those not directly involved in the peer group. Indirect/relational/social aggression also may unfold over longer periods of time than physical aggression. For example, it takes time for a rumor to spread throughout a peer group and by the time it has accomplished its goal, it is difficult to determine the source. Indirect/relational/social forms of aggression have been measured in a variety of ways, each with advantages and disadvantages. Crick and Grotpeter (1995) have measured relational aggression through a peer nomination instrument, which allows children to nominate up to three peers who fit each of the item descriptors. The number of nominations that children received from peers for each of the items is then summed and standardized within each classroom. Summing children's scores for the items within each scale creates relational aggression scale scores. The scores are then used to form high (1 *SD* above the mean) and low (remaining children not 1 *SD* above the mean) relationally aggressive groups. Peer nominations have been employed because social forms of aggression have been considered too subtle and too dependent on insider knowledge about the peer group for those outside the group to reliably assess (Crick & Grotpeter, 1995). Peer assessment of aggression is based on multiple informants and, therefore, may be more reliable than a single informant. Peer reports, however, only allow for the study of social aggression at exceptionally high rates and adolescents may be more hesitant to write down others' names due to repercussions from their more aggressive peers (Paquette & Underwood, 1999; Underwood et al., 2001). Researchers have concluded that peer reports are superior due to a low correlation

between the peer-nominations and self-report of social aggression (Bjorkqvist et al., 1992). However, a low correlation implies only that there is a weak relationship between the two variables. Given that it is not possible to determine which report is more "accurate," claims of superiority of peer reports cannot be made (Achenbach, McCouaughy, & Howell, 1987).

Crick (1996) has also used a teacher-rating measure of children's social behavior, where the teacher rates each student participating in the study on relational aggression, overt aggression, and prosocial behavior. The correlation between teacher and peer assessments has been mixed and there has been debate about how much bias from gender stereotypes interferes with reports from older children and adults (Crick, 1996; Crick et al., 1997; Underwood et al., 2001). Adults may be more influenced than children by gender stereotypes and may be likely to report that children engage in the type of aggression expected of their gender: overt aggression for boys and social aggression for girls (Underwood et al., 2001). Also, it may be difficult to have consistent teacher ratings in middle and high school due to the absence of one primary teacher that knows all of the students in his/her class well. It seems likely that teachers and peers have differing experiences of indirect/relational/social aggression in the peer group due to the covert nature of this behavior (Crick, 1996). Once children reach elementary school, they are mature enough to be sensitive to the presence of adults in social contexts and, thus, are unlikely to engage in aggressive behavior when teachers are watching (Crick et al., 1997).

Other researchers have used self-reports of indirect/relational/social aggression (Crick & Grotpeter, 1996; Galen & Underwood, 1997; Paquette & Underwood, 1999),

which allows children to report behaviors that may have occurred outside of the school setting (Crick & Bigbee, 1998). Assessing the behavior that occurs outside of school is important considering that 38 to 50% of victimization episodes have been shown to occur outside the immediate school peer group (Boulton & Underwood, 1982). Self-reports also allow children to report covert behaviors that are hidden from others and, therefore, may not by fully accessible by other informants (Crick & Bigbee, 1998). Researchers claim that youth have access to the whole range of their own emotions and behavior in a variety of settings, so youth reports represent a better estimate of what the youth actually sees, hears, and feels (Stone, Buehler, & Barber, 2002). These researchers also state that compared with other family members and teachers, children have the most access to and the greatest amount of knowledge about their own behavior. From this perspective, children might be the best interpreters and reporters of their own problem behavior (Stone et al., 2002).

Self-report measures are obviously less time-consuming and easier to administer to large samples of students, like the one used for the present study. However, self-report measures of aggressive behavior can be problematic due to the findings that socially aggressive children consistently under-report their own socially aggressive behavior, as compared to peer report (Bjorkqvist et al., 1992; Crick & Grotpeter, 1995). Nonetheless, given the previously discussed advantages of self-report instruments and the lack of systemic research in which peer and self-reports have been compared, additional information is needed before coming to firm conclusions about the validity of the self-report approach (Crick & Bigbee, 1998).

Gender Differences in Social Aggression

Many of the early studies examining gender differences in aggression either focused on physical aggression only or physical and verbal aggression together, but did not include indirect/relational/social forms of aggression (Maccoby & Jacklin, 1980). Empirical evidence that males are more physically aggressive than females continues to be strong (Bjorkqvist, 1994; Bjorkqvist et al., 1992; Crick & Grotpeter, 1995; Crick et al., 2002; Prinstein et al., 2001). However, recent research examining different patterns of aggression between males and females led to the identification of relational/indirect/ social aggression (Bjorkqvist, 1994; Crick, 1995; Crick & Grotpeter, 1995). Feshbach (1969) was one of the first to observe more subtle forms of aggression: "Social exclusion and rejection, though indirect means of inflicting injury, are painful events, which, like more direct methods such as physical attack and verbal assault, can be used to satisfy hostile, aggressive motives" (p. 249). Feshbach labeled this type of behavior "indirect aggression," and found that first-grade girls showed significantly higher levels of indirect aggression than first-grade boys during a peer group entry situation. In the 1980's, Bjorkqvist and colleagues began to study indirect aggression and found that girls reportedly used more indirectly aggressive techniques while boys used more direct aggression (Bjorkqvist & Niemela, 1992; Bjorkqvist et al., 1992).

In the U.S., the identification and study of "relational aggression" has occurred more recently. Crick and Grotpeter (1995) created a peer nomination measure to identify overtly aggressive, relationally aggressive, and nonaggressive third through sixth grade children. The researchers classified children as being aggressive if they were rated one standard deviation above the mean for relational aggression, overt aggression, or both.

Findings indicated that, as a group, girls were significantly more relationally aggressive than boys and girls were more likely to be represented in the relationally aggressive group (Crick & Grotpeter, 1995).

Crick, Bigbee, and Howes (1996) conducted interviews with children asking them "What do most girls/boys do when they want to be mean to another girl/boy?" (p. 1005). They found that both male and female children responded to this question differently. Boys reported that physical aggression and verbal insults were used more frequently than any other behavior by boys when they wanted to harm another boy. Relational aggression and verbal insults were cited most frequently by girls as a means used by girls to harm another girl. When asked about normative angry behavior for their own sex, (What do most girls/boys do when they are mad at someone?) girls cited relational aggression significantly more often than any other behavior and boys cited overt aggression significantly more often than any other behavior (Crick et al., 1996). Furthermore, results showed that approximately equal numbers of girls and boys were classified as "aggressive" when both social and overt aggression were taken into account (Crick & Grotpeter, 1995).

Although many of the aforementioned studies show that girls are more likely than boys to use indirect/relational forms of aggression (Bjorkqvist, 1994; Crick, 1996; Crick & Grotpeter, 1995; Crick, Ostrov, & Burr, 2006), other studies have shown no gender differences in relational/social aggression (Coyne et al., 2006; Galen & Underwood, 1997; Loukas et al., 2005; Prinstein et al., 2001), and some studies have shown that males are more relationally/socially aggressive than females (Loudin et al., 2003; Tomada & Schneider, 1997). Discrepancies in gender differences across studies could be attributed

to varying methodologies such as differences in rater (peer, teacher, or self-report) and age of the participants (Underwood et al., 2001). One study found no gender differences in relational aggression at grade 3, but at grade 6 more girls engaged in relational aggression then boys (Zimmer-Gembeck, Geiger, & Crick, 2005). Gender differences also may be discrepant depending on the conceptualization of aggression as a continuous or a categorical variable. Rys and Bear (1997) found no gender differences in peer reported relational aggression in a group of third and sixth grade children when mean levels of peer- and teacher-ratings were examined. However, when aggression was dichotomized into high and low categories (1 *SD* above the mean=aggressive; not 1 *SD* above the mean= non-aggressive), girls were more likely than boys to be rated as relationally aggressive. Loukas et al. (2005) reported a similar pattern of findings for self-reported social aggression among 10 to 14 year old early adolescents. These results indicate that boys and girls may report similar mean levels of social aggression, but girls tend to use this form of aggression exclusively at higher levels.

Relational and social aggression have been shown to be more hurtful to females and used at more extreme levels (Bjorkqvist et al., 1992; Coyne et al., 2006; Crick & Grotpeter, 1995; Murray-Close et al., 2006). Indirect/relational/social aggression has also been linked to social maladjustment, and to internalizing and externalizing problem behaviors, however this maladjustment is stronger or more pervasive for girls than for boys (Crick, 1996; Crick & Grotpeter, 1995; Murray-Close et al., 2007; Rys & Bear, 1997). It has been hypothesized that because females use social forms of aggression at higher levels, they experience more distress from this type of aggression (Bjorkqvist et al., 1992; Crick & Grotpeter, 1995). A large body of literature also shows that

indirect/relational/social aggression is particularly relevant to girls' peer groups (Bjorkqvist et al., 1992; Crick & Grotpeter, 1995; Feshbach, 1969). More specifically, these authors propose that, when attempting to inflict harm on peers, children tend to engage in behaviors that are most likely to damage valued goals. Because girls typically focus on relational issues during social interaction, acts that harm social connections are likely to be particularly effective in girls' peer groups. Due to inconsistencies in the research about the use and development of socially aggressive behavior by girls as compared to boys, the current study examines this question further.

Cross-Cultural Studies and Social Aggression

Of the limited cross-cultural studies conducted, the construct of social aggression has been supported. In addition to the Finnish studies described earlier (Bjorkqvist et al., 1992), there have been several studies providing evidence in other countries of the existence of social aggression as a behavior that is more prevalent among girls (French, Jansen, & Pidada, 2002; Osterman, Bjorkqvist, Lagerspetz, Kaukiainen, Huesmann, & Fraczek, 1994; Owens, Shute, & Slee, 2000). Tomada and Schneider (1997) examined teacher and peer nominations of relational and overt aggression in third and fourth grade Italian boys and girls. Similar to American samples, when children were categorized as aggressive (using the cut points of one standard deviation above the mean), researchers found that relational aggression was more prevalent than overt aggression among the Italian girls. While only one girl (< 1%) was nominated as highly overtly aggressive, 14 girls (9.1%) were nominated as highly relationally aggressive. However, like Loukas et al. (2003), Tomada and Schneider (1997) found more boys to be nominated as relationally aggressive as compared to girls (12.5 % and 9.1% respectively). The authors

suggest that Italian boys may exhibit higher levels of relational aggression than American boys due to the modeling of this behavior in close knit relational networks of their families.

Peer Rejection and Social Aggression

Over the last decade, researchers have begun to examine the social, psychological, and behavioral correlates of social aggression. One of the most studied correlates of boys' and girls' overt aggression is peer rejection (Coie & Dodge, 1983; French & Waas, 1985). Studies on the relationship between relational aggression and peer rejection have shown a similar pattern in that relationally aggressive children and adolescents are more likely to be rejected by their peers (Crick, 1996; Crick et al., 1997; Crick et al., 2006; Crick & Grotpeter, 1995). Social and relational aggression predict peer rejection, above and beyond overt aggression (Crick, 1996; Rys & Bear, 1997). Moreover, in a short-term longitudinal study of 3rd through 6th graders, girls' relational aggression was associated with increases in peer rejection over the course of a school year (Crick, 1996). However, this should not be construed to mean that socially/relationally aggressive children do not have friends. Although both Rys and Bear (1997) and Grotpeter and Crick (1996) found that socially/relationally aggressive children do engage in mutual friendships, the quality of these friendships differs from those of their peers. More specifically, socially/relationally aggressive girls report higher levels of exclusivity and intimacy in their friendships than non-socially/relationally aggressive girls (Grotpeter & Crick, 1996; Murray-Close et al., 2007; Rys & Bear, 1997). Additionally, the friends of relationally aggressive children engage in relatively high levels of relational aggression compared to the friends of nonsocially aggressive children (Werner & Crick, 2004). In sum, the

empirical data shows that socially aggressive children are at-risk for both rejection by conventional peers and association with deviant (i.e., aggressive) peers.

Social Aggression and Depressive Symptoms

Overt aggression has been linked to externalizing problems (e.g., disruptive behavior), antisocial behavior, poor school adjustment, delinquency, and adult substance abuse (Coie & Dodge, 1983, Crain, 2002). Research on indirect/relational/social aggression has shown a strong relationship to both internalizing and externalizing problems (Bjorkqvist & Niemela, 1992; Crick, 1997; Crick et al., 1997; Crick & Grotpeter, 1995; Murray-Close et al., 2007; Paquette & Underwood, 1999). Self- and teacher- reports of relationally aggressive middle school girls revealed high levels of loneliness (Crick & Grotpeter, 1995), depression (Crick et al., 1997; Crick & Grotpeter, 1995), social isolation (Crick & Grotpeter, 1995) and internalizing and externalizing scores on the Child Behavior Checklist (Crick, 1997). Relationally aggressive children tend to feel unhappy and distressed about their peer relationships (Crick & Grotpeter, 1995). These children also tend to endorse more depressive symptoms on the Children's Depressive Inventory (Kovacs, 1985) than do their non-relationally aggressive peers (Crick & Grotpeter, 1995). It may be that frequent engagement in social forms of aggression generates or exacerbates feelings of social psychological distress because these behaviors potentially reduce acceptance by the peer group (e.g., excluding peers results in fewer peers to interact with; Crick & Grotpeter, 1995). It is also possible that these feelings of psychological distress initially lead to engagement in social aggression. For example, children who feel lonely or rejected by their peers may use social forms of aggression as a way to retaliate against peers or to feel better by controlling others or

feeling more powerful than others. Self-report of depressive symptoms was one of the individual-level variables examined in the current study.

Socially/relationally aggressive children may also exhibit externalizing problems such as impulsivity, defiant behaviors, or other blaming behaviors in addition to internalizing problems (Crick, 1997). In a college sample, Werner and Crick (1999) found that peer estimations of relational aggression were correlated with antisocial personality features, borderline personality features, bulimia (for women only), greater difficulty with anger management, impulsivity, self-destructive behavior, and lower levels of prosocial behavior.

Cognitive Theories of Aggression

Researchers have turned to cognitive theories in an attempt to explain why children continue to respond in aggressive ways despite the negative experiences and consequences that are associated with this behavior. Early theorists hypothesized that aggression was associated with frustration in the perpetrator due to a thwarting of a goal (Crain, 2002). However, this theory only seems to fit particular situations (e.g., reactive aggression that occurs in response to a perceived provocation; Crain, 2002). In contrast, behaviorists have conceptualized aggression as being stimulated by antecedent cues and reinforced by consequent events with little or no cognitive mediation.

Cognitive-behavioral or social-learning theorists take a comprehensive approach, which may lead to a more integrated explanation of the aggressor and the functions that the behavior serves across various situations (Dodge & Crick, 1990). Dodge's social information-processing (SIP) theory, conceptualizes aggression as the result of a complex series of cognitive, emotional, and behavioral processes that include problem

identification and problem-solving techniques (Crick & Dodge, 1994; Dodge & Crick, 1990).

Social Information-Processing Theory

The SIP theory suggests that children's social behavior is the outcome of six cognitive steps, which are influenced by both the child's developmental history and individualized cognitive style (Crick & Dodge, 1994). According to Crick and Dodge, children engage in the following steps before engaging in social behavior: (1) encoding of external and internal cues; (2) interpreting and mentally representing those cues; (3) clarifying or selecting a goal; (4) accessing or constructing potential responses; (5) deciding which responses to enact; and (6) behaviorally enacting the response. Crick and Dodge hypothesize that these steps occur in a cyclical pattern, in that the steps reoccur in response to environmental interaction, and the steps also can occur simultaneously. Moreover, emotional arousal may have a significant impact on the cognitive processing at each step, although more research is needed in this area. SIP has been used to explain competent and maladaptive social behaviors, and it is hypothesized that aggression is the result of deficient processing at one or more of the SIP steps (Crick & Dodge, 1994; Dodge & Crick, 1990). Much of the research has focused on step 2, during which social cues are interpreted. During step 2, some children may interpret situations and perceive hostility when none exists. The faulty interpretation of social cues could precede the aggressive behavior. Many times children perceive that they are being negatively evaluated when they are not, which leads them to behave more aggressively.

Cue interpretation and intent attributions. Researchers have examined the ways in which children perceive their peer's behavioral motives in order to investigate how

children interpret social cues (Crick & Dodge, 1994). According to SIP theory, if a child interprets a peer's behavior as being motivated by hostile intent rather than benign intent, the child is more likely to react in an aggressive manner. Researchers have used hypothetical vignettes to examine the differences in attributions of intent between aggressive and non-aggressive children (Crick, 1995; Dodge & Somberg, 1987). Typical provocation vignettes contain situations where a child is the recipient of a slight by a peer (e.g., peer breaks one of the target's toys), but the vignettes do not specify whether the slight was intentional or not. The participant is then asked to imagine that this situation had just occurred to them and to report their attributions of the provocateur's intent. This type of study has provided evidence for hostile attribution bias (HAB) at the cue interpretation step (step 2) of the SIP model. Many researchers have found that overtly aggressive boys attribute hostile intent to provocateurs in ambiguous situations (e.g., Dodge & Somberg, 1987; Nasby, Hayden, & De Paulo, 1980). Some investigators have found similar levels of HAB in overtly aggressive girls as well (Crick & Dodge, 1996); however the evidence is still mixed.

Crick (1995) examined attribution bias in relational aggression by creating ambiguous provocation situations that were either instrumental (e.g., a peer breaks participant's toy) or relational (e.g., participant is not invited to a party) provocations. Instrumental conflicts are centered on obtaining some tangible object or position, whereas relational conflicts are associated with peer acceptance and friendship. Gender socialization theorists have hypothesized that instrumental conflicts are more salient in boys peer groups and relational conflicts are more significant in girls peer groups (Block,

1983). Block also found that females report greater concern than males for interpersonal relations and they tend to form more intimate social relationships than males.

Using these ambiguous provocation situations, Crick (1995) found that relationally aggressive children attributed hostile intent to provocateurs in relational provocation situations significantly more than their non-aggressive peers. Moreover, relationally plus overtly aggressive children attributed hostile intent to instrumental provocation situations significantly more than their peers. These results have led some researchers to suggest that the processes contributing to overt aggression can be extended to relational/social aggression (particularly in females). However, it is possible that relational/social and overt aggression differ in purpose, function, and cognitive processing mechanisms. Thus, prior to drawing firm conclusions, additional research is needed on the association between social aggression in girls and the cognitive processing steps.

SIP model and emotion. A neglected aspect of the SIP model is emotion. Some theorists have declared emotion as being distinct from SIP (Gottman, 1986; Zajonc, 1980), while others have argued for the integration of emotion and cognition (Greenberg & Safran, 1984). Crick and Dodge (1994) claim that emotions influence each SIP step. At step 2, emotions could influence the interpretation of particular social situations in a variety of ways. Crick and Dodge (1994) provide an example of this:

> Negative feelings (e.g., anger or anxiety) experienced when meeting a peer for the first time may lead to an immediate dislike of the peer. Likewise, prior-existing arousal states can alter children's accuracy in making social interpretations, such as when fatigue leads to errors. Also, the child's interpretation itself may lead to

> the experience of affect. For example, an interpretation of a peer's intent as hostile may lead to feelings of fear or anger. (p. 81)

Research has shown a positive relation between children's social adjustment and their feelings of loneliness, social anxiety, and depression (Crick & Ladd, 1993; La Greca, Dandes, Wick, Shaw, & Stone, 1988). Dodge and Somberg (1987) showed that emotional arousal has a debilitating effect on aggressive children's interpretation accuracy. Also, Crick and Ladd (1993) found that children's feelings of distress in social situations might be dependent on their causal attributions.

Social Evaluative Anxiety

Social evaluative anxiety (SEA) is one type of social anxiety characterized by a heightened fear of negative evaluation (FNE) (Kashdan & Herbert, 2001; La Greca, 2001). According to Watson and Friend (1969), individuals who are high in FNE tend to be overly concerned with others evaluations and, in turn, are often preoccupied with seeking approval and/or avoiding disapproval. Elevated levels of social evaluative anxiety among adolescents have been linked to a lower number of positive relationships (La Greca, 2001; La Greca & Lopez, 1998; Watson & Friend, 1969), and a higher incidence of depression, negative affect, and negative self-esteem (Inderbitzen-Nolan & Walters, 2000). Extreme levels of social evaluative anxiety also have been connected to conduct disorder (Davidson, Hughs, George, & Balzer, 1993). Few studies have examined the relationship between SEA and social aggression.

Social-cognitive theorists hypothesize that individuals who misinterpret intent attributions as being hostile are more likely to use aggression as a means of retaliation (Crick & Dodge, 1994). Researchers suggest that individuals high in SEA tend to assume

that they are being negatively evaluated, even when they are not (Clark & Wells, 1995; Loukas et al., 2005; Watson & Friend, 1969). Therefore, it seems likely that elevated levels of SEA may contribute to misperceptions of others' intentions in social situations. One study found that although female college students reported significantly higher levels of SEA than their male peers, this type of anxiety was uniquely associated with self-reported social aggression among females and males, independent of empathy and another component of anxiety, social avoidance and distress (Loudin et al., 2003). Another study demonstrated that the social evaluative aspect of social anxiety was positively associated with girls' and boys' self-reported social aggression (Loukas et al., 2005). Given that little research has been conducted on the relationship between SEA and social aggression, with the exception of these studies, the proposed study examined this relationship further.

Family Factors

There is a wealth of data suggesting that family factors are related to overt/physical aggression, peer rejection, and antisocial behaviors. Little research has been conducted, however, on the relationship between family factors and social aggression. Therefore, literature examining family factors and overt aggression was reviewed first. Then the existing research on the family environment and social aggression will be discussed.

Family and Overt Aggression

Family relationship variables have long been associated with overt aggression and antisocial behavior. Parent-child relationships consisting of harsh and inconsistent discipline, little positive parental involvement, and poor monitoring and supervision of

the child's activities have been shown to be positively related to overt aggression, peer rejection, and antisocial behavior (Coie & Dodge, 1998; Dishion, 1990; Patterson et al., 1989). In contrast, children who experience high levels of maternal affection (positive maternal interest) have shown low levels of overt aggression or disruptive behavior (McFadyen-Ketchum et al., 1996). In comparison to their counterparts, families that are characterized by more open expressions of anger and conflict are more likely to have preadolescent children that score in the clinically significant range on several measures of adjustment (self, parent, and teacher rated; Jaycox & Repetti, 1993). These children are also more likely to have a poor self-perception and parents are more likely to rate them as having clinically significant externalizing behavior problems at home.

Hart and his colleagues (1998) examined the influence of parenting styles and marital interaction on the aggressive behavior of preschool children in Russia. Elevated levels of responsiveness by mothers and fathers, as measured by self-report, were associated with lower levels of overt aggression for preschool boys (Hart et al., 1998). More paternal responsiveness was associated with lower levels of overt aggression in preschool girls (Hart et al., 1998). This same study also revealed that maternal, and not paternal, psychological control was significantly associated with teacher-rated overt aggression in boys and girls.

Putallaz (1987) found that children's behavior with their mothers was correlated with aversive (i.e. disagreeable) behavior with unfamiliar peers and sociometric status at school. This study also found that the mother's aversive behavior (i.e., controlling, negative) was positively correlated with the child's aversive behavior with peers. When examining the family factors of children that bully, Stevens, De Bourdeaudhuij, and Van

Oost (2002) found that these children perceive their family as less cohesive, more conflictual, and less organized and controlled. This study also revealed these families rate themselves to have reduced expressiveness, social orientation, and attachment. Connolly and Moore (2003) found children who bullied, as determined by a peer nomination instrument, perceived themselves as having a more ambivalent relationship with their siblings and parents as compared to a control group. Katz and Gottman (1993) found that couples' hostility toward each other predicted teacher ratings of their children's antisocial behavior. Moreover, marital conflict also has been significantly associated with overt aggression in preschool boys (Hart et al., 1998)

In addition to the above family factors, family structure has been hypothesized to put children at increased risk for engaging in a number of risky behaviors. Fitzpatrick (1997) reported that family structure interacted with frequency of parent-youth communication to predict fighting, in that only youth from 1-parent families who talked less with their parents about their problems were more likely to report fighting. Another study found boys in single-parent families often have higher rates of overt aggression, however the same did not hold true for girls (Vaden-Kiernan, Ialongno, Pearson, & Kellam, 1995). Alternatively, positive parenting practices, such as eating dinner together and parent-child communication, have shown to be protective factors for youth in single parent homes (Griffin, Botvin, Scheier, Diaz, & Miller, 2000).

Coercive Family Processes

Perhaps the most consistent evidence connecting the family environment to overt aggression in children can be found in studies based on coercion theory. Drawn from a social-interactional perspective, coercion theory indicates that family members directly

train the child to perform antisocial behaviors (Patterson, 1982; Eddy, Leve, & Fagot, 2001; Fagot & Leve, 1998; McFadyen-Ketchum et al., 1996). The parents tend to be inconsistent in their use of both positive reinforcers for prosocial behavior and effective punishment for deviant behavior (Patterson, 1982; Patterson et al., 1989). The effect of this type of parenting is to permit repeated interactions with family members in which the child's coercive behaviors are reinforced (Patterson, 1982).

Patterson (1982) explains that while some of the reinforcement of the coercive behavior is positive (laughing, attention, or approval), the most salient set of contingencies for this type of behavior consists of escape-conditioning. In escape conditioning contingencies, the child uses aversive behaviors to counter and terminate the aversive intrusions by other family members. In families such as these, coercive behavior is functional and necessary for survival (Patterson et al., 1989). If these behavior patterns persist, the intensity of the coercive interactions escalates, often leading to extreme behaviors such as hitting and physical attacks. In a family where these interactions are frequent and enduring, a child is essentially trained to control other family members through coercive means and this behavior is often exacerbated by the lack of reinforcement for many prosocial skills (Patterson, 1982; Eddy et al., 2001; Fagot & Leve, 1998; Hart et al., 1998; McFadyen-Ketchum et al., 1996). Observations in the homes of such families suggest that children's prosocial acts are often ignored or responded to inappropriately, resulting in children who are socially unskilled and who engage in antisocial behaviors (Patterson, 1982).

Research has shown that coercive family processes contribute not only to antisocial behaviors, such as overt aggression, but these types of aversive social

exchanges also contribute to depressive symptoms (Compton et al., 2003; Davis, Sheeber, & Hops, 2002). According to coercion theory, aggressive and depressive behaviors are two different response classes that children may utilize in highly aversive home environments. That is, helplessness, self-derogation, withdrawal, and sadness may deflect aversive social events just as effectively as opposition, anger, and attack (Compton et al., 2003). Which response class the child uses would be partially determined by past direct and vicarious learning about their effectiveness in deflecting aversive social events or in getting attention (Snyder & Patterson, 1995).

Compton et al. (2003) found involvement in coercive family interactions increased both boys' and girls' risk for antisocial behavior, but it increased risk for depression only for girls. Several studies provide evidence that coercive family relationships may result in different outcomes for boys and girls, with boys' tendency to project aggression outward and girls' tendency to project it inward (Fagot & Leve, 1998; Zahn-Waxler, 1993) Maccoby (1998) suggests that persistent involvement in coercive family relationships may exacerbate already existing, normative gender differences in response to social challenge. Accordingly, McFadyen-Ketchum and colleagues (1996) found that both boys and girls have high initial peer- and teacher-rated levels of overtly aggressive and disruptive behaviors in kindergarten, but boy's overtly aggressive behavior increases over time, whereas girl's overt aggression decreases over time. In consideration of the research showing the relevance of social aggression for girls (Crick, 1995), one wonders if girls' overt aggression was replaced with social aggression over time.

Family and Social Aggression

While parenting and family factors have been a focal point of much of the research on overt aggression, research on parents and families of socially aggressive children is sparse. Crick et al. (1999) have theorized about the affects of family relationships on relational aggression based largely on the overt aggression/antisocial behavior studies and on their own unpublished data. These researchers hypothesize that children may learn relationally aggressive behaviors through observation of their parents' relationally aggressive behavior in the marital relationship and in the parent-child dyad. The children then model the behavior in their own relationships with peers. Grotpeter and Crick (1997, as cited in Crick et al., 1999) explored these hypotheses and found that relationally aggressive children had parents who were both overtly and relationally aggressive toward each other. Children who were both overtly and relationally aggressive had parents who were relationally aggressive toward their children. Relationally aggressive children had the most problematic relationships with their mothers, which were characterized by increased physical aggression and low levels of warmth.

Hart et al. (1998) conducted a cross-cultural study in Russia on the role of family factors in the relationally aggressive behaviors of 3 to 6 year old children. They found that more responsive parenting by mothers and fathers was associated with less relational aggression for boys. More maternal coercion was significantly related to increased teacher-rated relational aggression in girls and more conflictual marriages were associated with increased relational aggression in boys. In another study, positive maternal affect towards their 5 to 8 year old children resulted in decreased teacher rated

relational aggression and negative maternal affect resulted in increased teacher rated relational aggression (Brown, Arnold, Dobbs, & Doctoroff, 2007). With the exception of the aforementioned studies (Brown et al., 2007; Grotpeter & Crick, 1997; Hart, 1998), no other research to date has examined how the quality of family relationships might influence early adolescent social aggression. The present study extends the existing literature by investigating the influence of parent-adolescent conflict and positive family relations on early adolescent social aggression measured one year later.

Parental Psychological Control and Social Aggression

Psychological control is another family factor that may be particularly relevant to social aggression. Like social aggression, parental psychological control is chiefly covert in nature (Morris, Silk, Steinberg, Sessa, Avenevoli, & Essex, 2002) and is characterized by the manipulation of the parent-child relationship (Barber, 1996). According to Barber (1996) parental psychological control includes behaviors that focus on controlling the child's psychological world. The parent may withdraw love, constrain verbal expressions, and invalidate feelings to control their children (Barber, 1996). Parental psychological control has been linked to internalizing symptoms, particularly depression and anxiety, and externalizing problems (delinquency) in children (Barber, 1996; Barber & Buehler, 1996; Siqueland et al., 1996).

Parental psychological control is particularly relevant in early adolescence given the autonomy-oriented processes occurring in the form of identity development and transformations in family and peer relationships (Barber, 1996). Psychologically controlling processes make it difficult for a child to develop a healthy awareness and perception of self for several reasons: the covert derogation of the child, the lack of

healthy interaction with others that is needed for adequate self definition, fewer opportunities to develop a sense of personal efficacy, and interference with the exploration needed to establish a stable identity (Barber, 1996). It would be expected that as adolescents more firmly define themselves as connected to, yet separate from, their significant others, intrusions into this process of self-formation would have negative consequences (Barber, 1996). Barber (1996) also claims that parental psychological control is only influential to the extent that it is perceived by the child and that self-report is the most appropriate form of measurement. Children may be the best informants of their psychological self, which is the aspect of their functioning and development that is the target of parental psychologically controlling behavior (Barber & Harmon, 2002). The limited existing results regarding the use of parental psychological control and its contribution to social aggression have been somewhat inconsistent.

In a preliminary study, Nelson and Crick (2002) showed that paternal psychological control was associated with third grade girls' peer nominated social aggression and maternal psychological control was marginally related to third grade girls' peer nominated overt aggression. Crick (2003) found that mother's use of psychological control significantly predicted 4th grade boys' future use of both physical and social aggression one year later. Maternal psychological control was not, however, found to be significantly related to 4th grade girls' use of social aggression one year later.

In a study of 3 to 6 year old boys and girls, Hart et al. (1998) failed to find a relationship between parental psychological control and social aggression. Alternatively, Loukas et al. (2005) found maternal psychological control to be associated with overt aggression for all 10 to 14 year old boys, but with social aggression only for Latino boys.

Additional results from this study showed that maternal psychological control was directly associated with overt aggression in girls. However, the relation between maternal psychological control and girls' social aggression was mediated by social evaluative anxiety, a construct discussed previously. This study showed that elevated levels of social evaluative anxiety in girls may result from their mothers being psychologically controlling. Girls then become fearful that their peers are negatively evaluating them as well, so in turn they become more socially aggressive with their peers.

Despite the limited conflicting findings, additional research on the relationship between social aggression and parental psychological control is warranted given its relevance in early adolescence and the conceptual overlap in the constructs.

Mediated Models

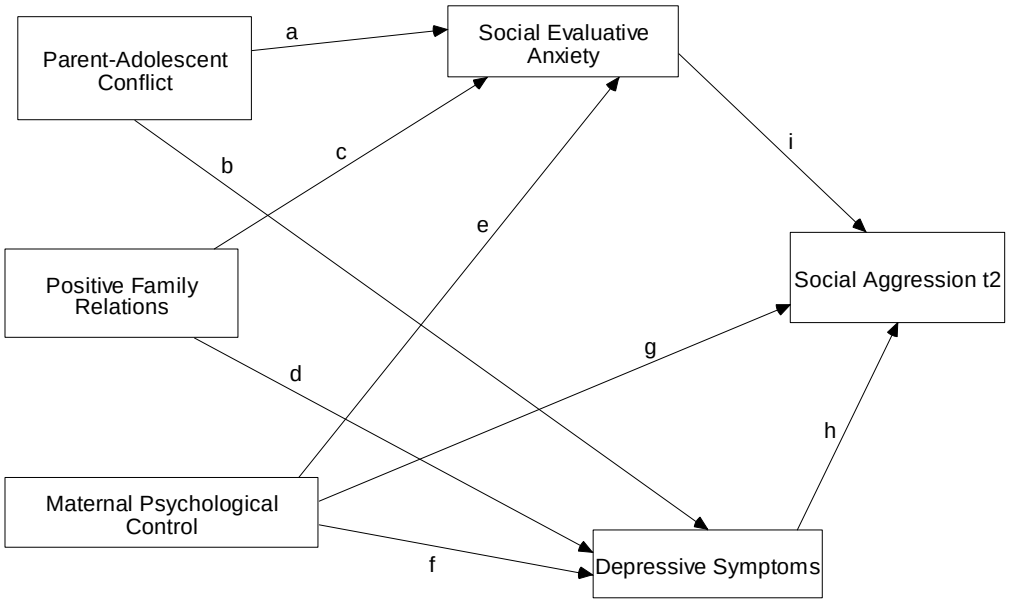
Loeber and Stouthamer-Loeber (1998) have recently proposed that the development of aggression and antisocial behaviors in children may be more complex than once was thought. They find that multiple pathways to aggression may fit equally as well as a single pathway and that gender largely influences how aggression evolves. Accordingly, multiple processes most likely contribute to social aggression. Given the lack of research on the etiology of social aggression, it is uncertain whether the effects of family factors influence social aggression directly or if family variables influence social aggression through a variety of indirect paths. The proposed study examined the contributions of positive family relations, parent-adolescent conflict, and maternal psychological control to social aggression measured one year later. Competing models were examined (see Chapter 3) to determine if these family factors directly influenced

subsequent social aggression one year later, or if symptoms of depression and/or social evaluative anxiety mediated these relationships.

There is a wealth of data showing that family factors directly influence internalizing symptoms (depression and anxiety) (See Figure 2 paths a-d; Barber & Buehler, 1996; Dmitrieva, Chen, Greenberger, & Gil-Rivas, 2004; Essau, 2004; Katz & Gottman, 1993; Siqueland et al., 1996). Poor quality of parent-child relations and elevated levels of family conflict have both been shown to be associated with children's depressive symptoms (See Figure 2 paths b & d; Compton et al., 2003; Davis et al., 2002). Increased maternal psychological control has been found to be associated with depression and social evaluative anxiety (See Figure 2 paths e & f; Barber, 1996; Barber & Harmon, 2002; Loukas et al., 2005). There have also been several studies providing evidence of the link between internalizing symptoms (depression and social evaluative anxiety) and social aggression (See Figure 2 paths h & i; Crick, 1997, Crick et al., 1997, Crick & Grotpeter, 1995; Loukas et al., 2005). Research has yet to determine the link between family relationships and social aggression. However, children who consistently experience family relationships characterized by coerciveness attribute more hostile intent to benign situations leading directly to heightened aggressiveness (Compton et al., 2003; Dishion, 1990; Dodge & Crick, 1990; Hart, Ladd, & Burleson, 1990; Stevens et al., 2002). The evidence regarding the effect of parental psychological control on social aggression has been sparse and conflicting. Some research has shown that children who have parents who are more psychologically controlling are more socially aggressive (See Figure 2 path g; Crick, 2003; Nelson & Crick, 2002). Other studies show that the effect may be indirect, through other more proximal variables. Loukas et al. (2005) found that

social evaluative anxiety mediated the relationship between maternal psychological control and girls' social aggression (see Figure 2 path e then i).

Figure 2. Path-analytic model: Empirically demonstrated paths.



Cummings (1994) has theorized that a stressor model may be at work when examining family environment and the development of aggressive behavior. This literature suggests that exposure to background anger in marital conflict and in coercive and less responsive parenting styles is emotionally and physiologically arousing for children. Such exposure seems to lower thresholds for emotional regulation and stimulates angry cognitions and feelings of hostility that may manifest into increased aggression towards peers (Coie & Dodge, 1998). These studies emphasize the need to examine more complex models of the role of family relationships in the development of aggression for boys and girls.

Summary and Rationale

Aggression has been consistently linked to negative individual and interpersonal outcomes in children and adults. More recently, researchers have been examining social aggression, a covert subtype of aggression. Some researchers have shown that this form of aggression is more relevant for girls (Bjorkqvist et al., 1992; Coyne et al., 2006; Crick, 1997; Crick & Grotpeter, 1995; Murray-Close et al., 2006), while others show no gender differences in the use of social aggression (Galen & Underwood, 1997; Loukas et al., 2005; Prinstein et al., 2001), and some studies have shown that males are more socially aggressive than females (Loudin et al., 2003; Tomada & Schneider, 1997).

Although there is controversy in the measurement of social aggression, children report this behavior to be hurtful and evidence indicates that it is associated with social maladjustment such as peer rejection and internalizing and externalizing problems (Crick, 1995; Crick, 1997; Crick & Grotpeter, 1995; Murray-Close et al., 2007). Despite increasing interest by researchers on the consequences of this form of aggression, relatively few studies have examined the etiology of social aggression. Guided by the social information-processing theory and coercion theory, this study examined the factors contributing to this form of aggression.

The social information-processing theory conceptualizes aggression as the result of deficient processing at one or more steps that occur before engaging in social behavior (Crick, 1995; Crick & Dodge, 1994; Crick & Ladd, 1990; Dodge & Crick, 1990). Much research has been directed at step 2 of the social information-processing theory, where aggressive children perceive hostile intent in benign interpersonal situations. Crick (1995) found that socially aggressive children attributed hostile intent to provocateurs in

relational provocation situations significantly more than their non-aggressive peers. It has been found that adolescents who have high levels of social aggression are high in social evaluative anxiety (Loukas et al., 2005), which may lead them to think they are being negatively evaluated when they are not (Watson & Friend, 1969).

There is a large literature base examining the contribution of family factors to overt aggression and antisocial tendencies. Familial conflict, little positive parental involvement, parental psychological control, and low levels of families cohesiveness have been shown to be positively related to overt aggression (Coie & Dodge, 1998; Dishion, 1990; Patterson et al., 1989). Coercive family processes where children learn antisocial behavior patterns from maladaptive interactions with their parents have been empirically shown to predict overt aggression, antisocial behaviors, and depression (for girls only) (Compton et al., 2003; Leve & Fagot, 2001; McFadyen-Ketchum et al., 1996; Patterson, 1982). Yet, little research has been conducted to determine the influence of family process on social aggression.

Parental psychological control is particularly important in early adolescence given the developmental tasks of increasing autonomy and identity development (Barber, 1996). Only a few studies have examined the relationship between psychological control and social aggression, however, these studies were on younger children (Crick, 2003; Hart et al., 1998; Nelson & Crick, 2002). In one study maternal psychological control has been shown to predict 10 to 14 year old girls and boys social aggression, although this effect was mediated by social evaluative anxiety for girls (Loukas et al., 2005). This study showed that elevated levels of social evaluative anxiety in girls may result from their mothers being psychologically controlling. Girls then become fearful that their

peers are negatively evaluating them as well, so in turn they become more socially aggressive with their peers.

This study examined the affects of family factors such as, parent-adolescent conflict, positive family relations, and maternal psychological control on subsequent social aggression one year later after controlling for baseline levels of social aggression. Individual self-reported symptoms of depression and social evaluative anxiety were also incorporated in the model to determine if the effects of the family variables on social aggression one year later were mediated by the individual emotional adjustment of a child. This study also compared how this model fit for boys and girls, due to the inconsistencies in gender differences and social aggression in the literature. The stability of social aggression over a one year period was also examined. If these problems prove to be stable, as suggested by the literature on overt aggression, it is possible that without intervention, socially aggressive children are likely to remain aggressive over time (Crick, 1996).

Knowledge of pathways to social aggression can help therapists and treatment planners in several ways. Where an individual is located on a pathway indicates not only present problems, but also problems that may follow so that there may be an attempt at prevention. Additionally, knowledge of the pathways to social aggression can help in the evaluation of interventions. Successful intervention appears to be possible for overtly aggressive preadolescents (Patterson et al., 1989), so it is necessary to understand this subtype of aggression so interventions can be developed and attempted.

Statement of the Problem

The present study explored the effects of family factors and individual emotional adjustment on the social aggression of early adolescent boys and girls measured one year later after controlling for baseline levels of social aggression. Numerous studies have examined the role of family factors in overt aggression (Coie & Dodge, 1998; Dishion, 1990; Patterson et al., 1989), but few studies have examined the effect of the family relationships on social aggression. Whether family environment effects are direct or meditated through individual emotional adjustment is unknown. Using path analytic techniques, the present study tested multiple competing models to determine if the effects of parent-adolescent conflict, positive family relations, and maternal psychological control on subsequent social aggression one year later were fully mediated by adolescent social evaluative anxiety and depressive symptoms. The stability of social aggression over a one year period was also examined.

CHAPTER 3

Method

Project Approval

This study used data previously collected under procedures in compliance with the ethical issues and standards of research delineated by the American Psychological Association (2002). Permission was obtained prior to data collection by Dr. Alexandra Loukas of the Department of Kinesiology and Health Education, University of Texas at Austin, and Dr. Sheri Robinson, then of the Department of Educational Psychology, University of Texas at Austin. Consent forms used during the data acquisition phase are included in the Appendix. Permission to use the extant data for the current study was obtained from the Departmental Review committee in the Department of Educational Psychology and the Institutional Review Board of the University of Texas at Austin, IRB Protocol #2006-04-0047.

Participants

Participants included in this study were 497 10 to 14 year old students attending all three middle schools in a suburban school district in central Texas and involved in the 1st and 2nd waves of a larger study. At Wave 1, students were in the 6th and 7th grades (*M* age = 11.68; *SD* = .75). Wave 2 took place one year later when students were in the 7th and 8th grades (*M* age = 12.75; *SD* = .72). Because the family relationship variables asked about interactions with parents, and to ensure adequate contact with at least one parent, only students reporting living with their mother, father, or both were included in the present study. In the entire sample of 500 (boys and girls), data from three students

reporting living with a relative (aunt/uncle or grandparent) were removed. The final sample (N = 497) for this study was comprised of students who were 53% female and 76% White. Of the 264 girls, 195 were of European American descent, 8 were African American, 48 were Latino, 2 were Asian American, 10 were in the category classified as 'Other', and 1 was listed as missing this information. Of the 233 boys, 181 were European American, 8 were African American, 32 were Latino, 1 was Asian American, 10 were in the category classified as 'Other', and 1 was listed as missing this information.

Procedure

At Wave 1, active parent consent was obtained from 76% (n = 884) of students attending all three schools. Because the study was not initially planned to include multiple waves, active parent consent was re-obtained when the decision was made to conduct a second wave of data collection one year later. Although all three schools agreed to allow students to participate at Wave 2, the principal for one school did not allow recruitment of the 8th grade students (130 students who participated at Wave 1 were therefore not eligible to participate at Wave 2) because of their standardized testing schedule for the year. Of the students participating at Wave 1 and who were eligible to participate at Wave 2, 71% received parental permission to participate at Wave 2. However, 38 students refused participation (n = 8) or were absent on the day of the survey and one make-up day (n = 30); consequently, 70% of the original sample participated at Wave 2. A questionnaire consisting of 161 items at Wave 1 and 160 items at Wave 2 was group-administered to participating students in one 40 minute homeroom class. A member of the research team read each question aloud to the

students to maintain compliance and to control for varying levels of reading rate and comprehension.

Measures

Parent-Adolescent Conflict

Parent-adolescent conflict was measured at Wave 1 by 4 items adapted from the Conflict Behavior Questionnaire (Prinz, Foster, Kent, & O'Leary, 1979) by Metzler, Biglan, Ary, and Li (1998). The items assessed the frequency of conflict experienced during the past week. A 7-point scale ranging from 1 ('never') to 7 ('more than 7 times') was used to respond to items such as 'I got my way by getting angry' and 'one of us got so mad, we hit the other person' (See Appendix A for parent-adolescent conflict items). Items were averaged so that higher scores reflect more parent-adolescent conflict. Metzler and her colleagues (1998) reported internal consistency reliabilities ranging from .55 at Wave 1 of their study to .78 at Wave 3 of their study. In the present study, the internal consistency reliabilities (coefficient alpha) of the scale were .62 for girls and .65 for boys.

Positive Family Relations

Quality of family relations was measured at Wave 1 with 6 items adapted by Metzler and her colleagues (1998) from the Family Environment Scale (Moos & Moos, 1986). Items assess the degree of warmth ('I really enjoyed being with my parents'), trust ('my parents trusted my judgment'), togetherness ('there was a feeling of togetherness in our family'), and fun ('the things we did together were fun and interesting') between the adolescent and her parents (see Appendix A for Positive Family Relations items). Responses ranged on a 5-point scale from 'never true' to 'always true'.

For the purposes of the present study, items were averaged so that higher scores reflect more positive family relations. Good internal consistency reliability (.91 for Wave 1, .91 for Wave 2, and .89 for Wave 3) and validity have been reported (Metzler et al., 1998). In the present study, internal consistency reliabilities (coefficient alpha) were .86 for boys and girls for this scale.

Maternal Psychological Control

Maternal psychological control was assessed at Wave 1 using the 8-item Psychological Control Scale-Youth Self Report (PCS-YSR; Barber, 1996). The PCS-YSR is based on the 10-item psychological control subscale of the Children's Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965), but provides more behavioral specificity than the CRPBI (Barber, 1996). The PCS-YSR assesses the following components (see Appendix A for a list of all Maternal Psychological items used in the present study): Invalidating feelings ('My mother is always trying to change how I think or feel about things'); constraining verbal expressions ('My mother often interrupts me'); personal attack ('My mother blames me for other family members' problems'); and love withdrawal ('My mother will avoid looking at me when I have disappointed her'). Adolescents rated their mothers' behaviors on a 3-point scale ranging from 1 ('Not like her') to 3 ('A lot like her'). Items were averaged, with higher scores reflecting higher maternal psychological control. Barber (1996) reported internal consistency for boys' and girls' reports of maternal psychological control with Cronbach's alphas ranging from .72 to .85. In the present study, the internal consistency reliabilities (coefficient alpha) of the scale were .81 for girls and .75 for boys.

Social Evaluative Anxiety

The self-report Social Anxiety Scale for Adolescents (SAS-A) adapted by La Greca and Lopez (1998) from the SAS-Revised (La Greca & Stone, 1993) was used to measure social evaluative anxiety at Wave 1. The SAS-A assesses fear of negative evaluation from peers (FNE; 8 items), social avoidance and distress in new social situations or with unfamiliar peers (6 items), and generalized social avoidance and distress (4 items). For the purposes of the present study, only the FNE subscale (e.g., "I worry what others think of me") was used (see Appendix A for a list of all FNE items). Each item was rated on a 5-point scale ranging from 0 ('Not at all') to 4 ('All the time'). Items were averaged so that higher scores reflect more fear of negative evaluation. La Greca and Lopez (1998) have shown that the FNE subscale has satisfactory internal consistency reliability (.86). Construct validity was supported by patterns of relationships between SASC-R subscales and children's self appraisals, as well as peer-rated sociometric status (La Greca & Stone, 1993). Given that the FNE subscale assesses the social evaluative aspect of social aggression, it is referred to as social evaluative anxiety in the current study. In the present study, the internal consistency reliabilities (coefficient alpha) of the scale were .90 for girls and .89 for boys.

Depressive Symptoms

The 27-item Children's Depression Inventory (CDI; Kovacs, 1985) was used to measure adolescent depressive symptoms at Wave 1. The CDI is appropriate for children ranging in age from 7 to 17 and assesses the cognitive and somatic aspects of depression (see Appendix A for a list of the CDI items used in the study). Youth are presented with 27 sets of 3-response alternatives and asked to pick the one that best describes them in the

past 2 weeks. One item regarding suicidal ideation was not included in the present study at the request of the school principals. The final score was based on the mean of the remaining 26 items. Each item was scored on a scale ranging from 0 to 2 with higher scores reflecting more depressive symptoms (13 items were reverse coded to put all items on the same scale). The CDI has been shown to have adequate internal consistency reliability and to discriminate between children who are depressed and those with no psychopathology (Kovacs, 1985). The internal consistency reliabilities (coefficient alpha) of the 26 items used in the current study were .89 for girls and .91 for boys.

Social Aggression

Social aggression was assessed at Waves 1 and 2 using a 6-item scale adapted from Crick and Grotpeter's (1995) 4-item peer-nominated measure of relational aggression (see Appendix A for a list of the items). This scale was adapted for the present study by modifying the wording of the four items so that middle school students could self-report how likely they were to engage in each of the behaviors. Two additional items assessing the frequency of negative facial expressions (making mean faces and rolling eyes at peers) were added given existing evidence that such expressions are important features of girls' aggressive behaviors (Galen & Underwood, 1997). In fact, Paquette and Underwood (1999) found that early adolescents reported that rolling eyes was the most frequently experienced non-physical aggressive behavior. The six self-reported items were scored on a scale ranging from 0 ('Not at all') to 4 ('All the time') and were averaged so that higher scores reflect more social aggression. Loukas et al., (2005) reported internal consistency for boys' and girls' reports of social aggression with Cronbach's alphas of .70 and .73 respectively. In the current study, the internal

consistency reliability (coefficient alpha) of the six item scale was .71 and .74 for the girls and boys, respectively at Wave 1 and .80 and .68 for the girls and boys, respectively at Wave 2.

Research Questions and Data Analyses

Research Question 1

(a) Is self-reported social aggression relatively stable over a one year period of time from Wave 1 to Wave 2? (b) Is the stability of self-reported aggression statistically significantly different for boys and girls?

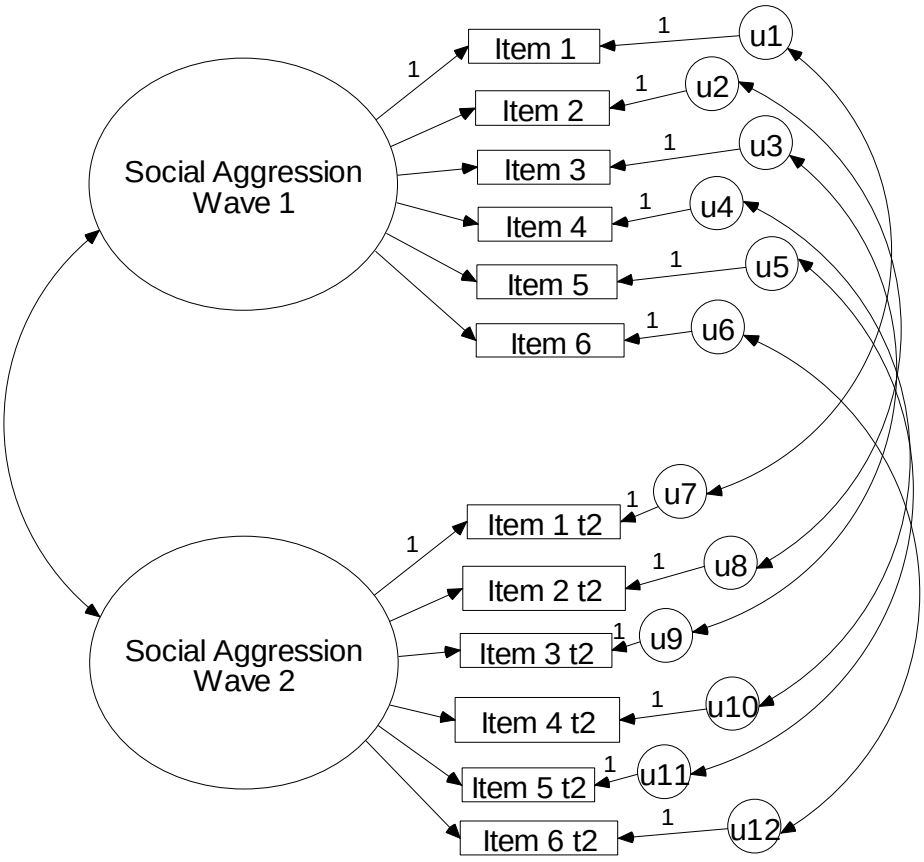
Hypothesis 1. (a) Self-rated social aggression will be relatively stable from Wave 1 to Wave 2. (b) The stability of girls' and boys' self-reported social aggression will not be statistically significantly different from Wave 1 to Wave 2.

Rationale. Self-reported social aggression will remain relatively stable from Wave 1 to Wave 2 and no gender differences are expected due to previous studies yielding these results. In one study, Crick (1996) showed that intraindividual differences in relational aggression during middle childhood are moderately stable and comparable to those for physical aggression over one-month and six-month intervals for boys and girls. Werner and Crick (2004) indicated that intraindividual differences in relational aggression were moderately stable over a one year period.

Data Analysis. Confirmatory factor analysis techniques were used to determine the stability of the latent variable social aggression from Wave 1 to Wave 2 using the computer program Amos (*A*nalysis of *Mo*ment *S*tructures; Arbuckle, 2003; Arbuckle & Wothke, 1999). A multisample analysis was also conducted to determine if the stability of social aggression is moderated by gender. The six items used to assess social

aggression at each time point were used as the indicators of a latent social aggression variable at Wave 1 and Wave 2. For the first analysis, the covariance between the two waves was tested for statistical significance (see Figure 3), and the magnitude of the correlation interpreted. For the second analysis, the statistical significance of the difference in this covariance for boys versus girls was evaluated.

Figure 3. Confirmatory factor analytic model: Test of the stability of social aggression.



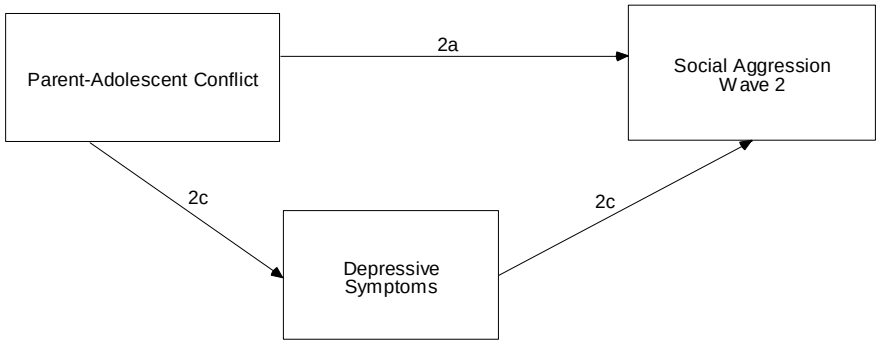
Research Question 2

(a) Does parent-adolescent conflict (measured at Wave 1) affect Wave 2 social aggression? (b) Is the effect of parent-adolescent conflict on social aggression different

for boys and girls? (c) Does parent-adolescent conflict affect social aggression directly or are the effects indirect via depressive symptoms or social evaluative anxiety?

Hypothesis 2. (a) Parent-adolescent conflict will affect social aggression at a statistically significant level (see Figures 4 and 9: path 2a). (b) The effect of parent-adolescent conflict on social aggression will be different for boys and girls. (c) Depressive symptoms will partially mediate the effect of parent-adolescent conflict on social aggression for girls (see Figures 4 and 9: paths 2a and 2c). For boys, parent-adolescent conflict will directly affect social aggression (see Figures 4 and 9: path 2a).

Figure 4. Path-analytic model: Test of the direct and indirect influences of parent-adolescent conflict on social aggression at wave 2.



Rationale. It is expected that parent-adolescent conflict will significantly affect social aggression due to the wealth of literature linking family conflict directly to overt aggression for boys and girls. Families that were characterized by more open expressions of anger and conflict had less well adjusted preadolescent children (Jaycox & Repetti, 1993). These children were more likely to have poor self-perceptions and to display externalizing behavior problems at home. Grotpeter and Crick (1997, as cited in Crick et al., 1999) found that socially aggressive children had parents who were both overtly and socially aggressive toward each other. Children who were both overtly and socially

aggressive had parents who were socially aggressive toward their children. Coercive family processes have been linked to internalizing symptoms, particularly depression (Compton et al., 2003; Davis et al., 2002). Compton et al. (2003) found involvement in coercive family interaction increased both boys' and girls' risk for antisocial behavior, but it increased risk for depression only for girls. For that reason it was predicted that the effect of parent-adolescent conflict on social aggression may be partially mediated by depressive symptoms for girls.

Data Analysis. Multisample path analyses were conducted to determine if there were significant differences in the model between early adolescent boys and girls using the chi-squared difference test. The paths from parent-adolescent conflict to social aggression were constrained to be equal in one model, and allowed to vary in a second model to determine whether parent-adolescent conflict had differential effects on social aggression one year later, dependent on sex. Once group differences or nondifferences were determined, direct and mediated effects (via depressive symptoms) of parent-adolescent conflict on social aggression one year later were examined for significance (see Figures 4 and 9: paths 2a and 2c).

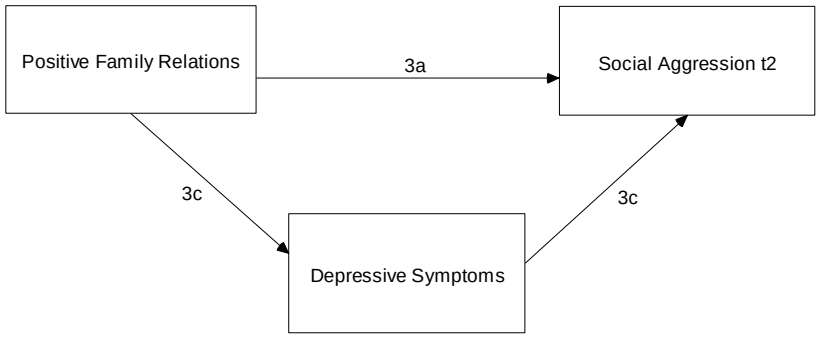
Research Question 3

(a) Do positive family relations (measured at Wave 1) affect Wave 2 social aggression? (b) Is the effect of positive family relations on social aggression different for boys and girls? (c) Do positive family relations affect social aggression directly or are the effects indirect via depressive symptoms or social evaluative anxiety?

Hypothesis 3. (a) Positive family relations will have a statistically significant negative effect on social aggression (see Figures 5 and 9: path 3a). (b) The effect of

positive family relations on social aggression will be different for boys and girls. (c) Symptoms of depression will partially mediate the effect of positive family relations on social aggression for girls (See Figures 5 and 9: paths 3a and 3c). For boys, positive family relations will directly affect social aggression (See Figures 5 and 9: path 3a).

Figure 5. Path-analytic model: Test of the direct and indirect influences of positive family relations on social aggression at wave 2.



Rationale. Positive family relations are thought to influence social aggression negatively due to several empirical studies showing that positive family relations are negatively related to children's overt aggression. Children who experience high levels of maternal affection (positive maternal interest) have shown low levels of overt aggression or disruptive behavior (McFadyen-Ketchum et al., 1996). Maternal-child relationships characterized by positive affect were found to be less relationally aggressive (Brown et al., 2007). Parent-child relationships consisting of harsh discipline and little positive parental involvement have been shown to be positively related to overt aggression, peer rejection, and antisocial behavior (Coie & Dodge, 1998; Dishion, 1990; Patterson et al., 1989). Connolly and Moore (2003) found children who bullied to have an ambivalent relationship with their siblings and parents. Grotpeter and Crick (1997, as cited in Crick et al., 1999) found that children who were both overtly and socially aggressive had

parents who were socially aggressive toward their children. Coercive family processes have been linked to internalizing symptoms, particularly depression (Compton et al., 2003; Davis et al., 2002). Compton et al. (2003) found involvement in coercive family interaction increased both boys' and girls' risk for antisocial behavior, but it increased risk for depression only for girls. For that reason it is thought that the relationship between positive family relations and social aggression may be partially mediated by depressive symptoms for girls.

Data Analysis. Multisample path analyses were conducted to determine if there were significant differences in the model between early adolescent boys and girls using the chi-squared difference test. The paths from positive family relations to social aggression one year later were constrained to be equal to determine the interaction effect of sex and family relations on social aggression. Once group differences or nondifferences were determined, direct and mediated effects (via depressive symptoms) of positive family relations on social aggression one year later were examined for significance (see Figures 5 and 9: paths 3a and 3c).

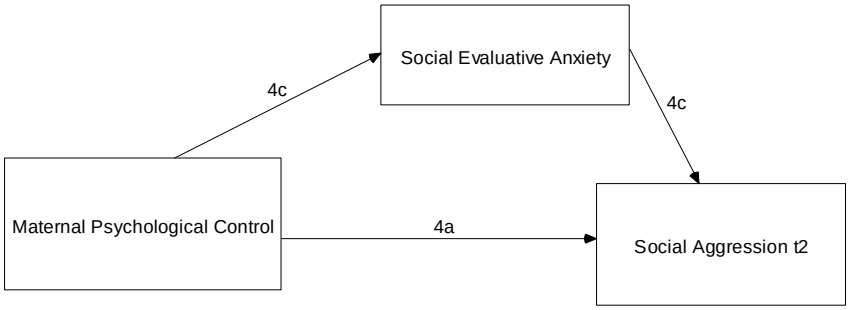
Research Question 4

(a) Does maternal psychological control (measured at Wave 1) significantly affect Wave 2 social aggression? (b) Is the effect of maternal psychological control on social aggression different for boys and girls? (c) Does maternal psychological control affect social aggression directly or are the effects more indirect via depressive symptoms or social evaluative anxiety?

Hypothesis 4. (a) Maternal psychological control will have a significant effect on social aggression for girls (see Figures 6 and 9: path 4a). (b) The effect of maternal

psychological control on social aggression will be statistically significant different between boys and girls. (c) Social evaluative anxiety will mediate the effect of maternal psychological control on social aggression for girls (see Figures 6 and 9: paths 4c).

Figure 6. Path-analytic model: Test of the direct and indirect influences of maternal psychological control on social aggression at wave 2.



Rationale. It was expected that social evaluative anxiety would mediate the effect of maternal psychological control on social aggression because parental psychological control has been linked to internalizing symptoms, particularly depression and anxiety (Barber, 1996; Barber & Buehler, 1996; Siqueland et al., 1996). Grotpeter and Crick (1997, as cited in Crick et al., 1999) found that socially aggressive children had the most problematic relationship with their mothers, which were characterized by increased physical aggression and low levels of warmth.

Loukas et al. (2005) found maternal psychological control to be associated with social aggression only for Latino boys and that the relation between maternal psychological control and girls' social aggression was mediated by social evaluative anxiety. The present study attempted to replicate these results.

Data Analysis. Multisample path analyses were conducted to determine if there were significant differences in the model between early adolescent boys and girls using the chi-squared difference test. The paths from maternal psychological control to social

aggression were constrained to be equal to determine the interaction effect of sex. Once group differences or nondifferences were determined, direct and mediated effects (via social evaluative anxiety) of maternal psychological control on social aggression one year later were examined for significance (see Figures 6 and 9: paths 4a and 4c).

Research Question 5

(a) Does depressed mood (measured at Wave 1) significantly affect Wave 2 social aggression? (b) Is the effect of depressed mood on social aggression different for boys and girls?

Hypothesis 5. (a) Depressive symptoms will significantly effect social aggression (see Figures 7 and 9: path 5a). (b) There will be no gender differences in the effect of depressed mood on social aggression.

Figure 7. Path-analytic model: Test of the direct influences of depressive symptoms on social aggression at wave 2.

Rationale. Depressive symptoms are thought to be significantly related to social aggression because research on social aggression has shown a strong relation between social aggression and both internalizing and externalizing problems (Crick, 1997, Crick et al., 1997, Crick & Grotpeter, 1995). Self- and teacher- reports of socially aggressive middle school girls revealed higher levels of loneliness (Crick & Grotpeter, 1995), depression (Crick et al., 1997; Crick & Grotpeter, 1995), social isolation (Crick & Grotpeter, 1995) and internalizing and externalizing scores on the Child Behavior Checklist (Crick, 1997). Socially aggressive children tend to feel unhappy and distressed

about their peer relationships (Crick & Grotpeter, 1995). The present study attempted to replicate these results.

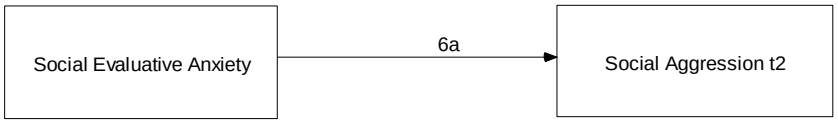
Data Analysis. Multisample path analyses were conducted to determine if there were significant differences in the model between early adolescent boys and girls using the chi-squared difference test. The path from depressive symptoms to social aggression one year later was constrained to be equal to determine the interaction effect of sex (see Figures 7 and 9: path 5a).

Research Question 6

(a) Does social evaluative anxiety (measured at Wave 1) significantly affect Wave 2 social aggression? (b) Is the effect of social evaluative anxiety on social aggression different for boys and girls?

Hypothesis 6. (a) Social evaluative anxiety will have a significant effect on social aggression (see Figures 8 and 9: path 6a). (b) There will be no gender differences in the effect of social evaluative anxiety on social aggression.

Figure 8. Path-analytic model: Test of the direct effects of social evaluative anxiety on social aggression at wave 2.

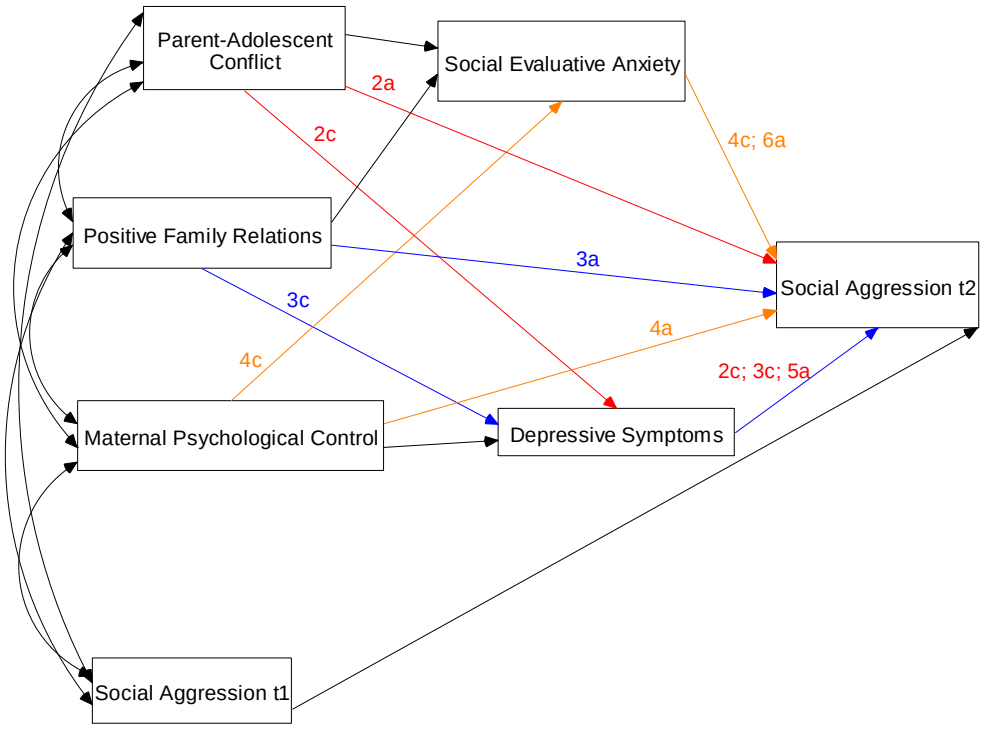


Rationale. Elevated levels of social evaluative anxiety have been linked to a lower number of positive relationships (La Greca, 2001; La Greca & Lopez, 1998; Watson & Friend, 1969), and a higher incidence of depression, negative affect, and negative self-esteem (Inderbitzen-Nolan & Walters, 2000). Extreme levels of social evaluative anxiety have been connected to conduct disorder (Davidson et al., 1993).

Although female college students reported significantly higher levels of social evaluative anxiety than their male peers, this type of anxiety was uniquely associated with self-reported social aggression among females and males (Loudin et al., 2003). Another study demonstrated that the social evaluative aspect of social anxiety was positively associated with girls' and boys' self-reported social aggression (Loukas et al., 2005). The present study attempted to replicate these results.

Data Analysis. Multisample path analyses were conducted to determine if there were significant differences in the model between early adolescent boys and girls using the chi-squared difference test. The path of social evaluative anxiety to social aggression was constrained to be equal to determine the interaction effect of sex (see Figures 8 and 9: path 6a).

Figure 9. Initial path-analytic model: Direct influences of parent-adolescent conflict, positive family relations, and maternal psychological control, and mediating influences of social evaluative anxiety and depression on changes in wave 2 social aggression after controlling for the effects of wave 1 social aggression.



CHAPTER 4

Results

The present study explored the effects of family factors and individual emotional adjustment on the subsequent social aggression of early adolescent boys and girls, after controlling for baseline levels of social aggression. Using path analytic techniques, the present study tested competing models to determine if the effects of parent-adolescent conflict, positive family relations, and maternal psychological control on subsequent social aggression one year later were different based on sex and if the effects were mediated by adolescent social evaluative anxiety and depressive symptoms. The stability of social aggression over a one year period was also examined using confirmatory factor analysis. This section details the findings of the analyses presented in the previous chapter. Descriptive statistics are presented first, followed by preliminary analyses. The next section includes the results for each hypothesis and the final section summarizes of the results.

Descriptive Statistics

Descriptive statistics for the confirmatory factor analysis are presented by group (i.e., boys and girls) in Table 1 and include means and standard deviations for each of the social aggression items at waves 1 and 2. Zero-order correlations for each of the social aggression items at waves 1 and 2 for boys and girls are presented in Table 2. Descriptive statistics for the path analytic model are presented by group in Table 3 and include means and standard deviations for each of the measured variables. Zero-order correlations for each of the measured variables in the path-analytic model are also presented by group in Table 4. The measured variables in the path-analytic model include

parent-adolescent conflict, positive family relations, maternal psychological control, social evaluative anxiety, depressive symptoms, social aggression at time 1, and social aggression at time 2 variables. It should be noted that in computing descriptive statistics and correlation coefficients cases were excluded pairwise, thus the sample sizes ranged from a low of 261 to a high of 264 for girls and a low of 230 to a high of 233 for boys.

Table 1

Means and Standard Deviations of the Social Aggression Items by Wave and Sex (N = 491-497)

Item #	Wave 1		Wave 2	
	M	*SD*	*M*	*SD*
		Girls (*n* = 261-264)		
1	1.84	0.85	1.84	0.94
2	1.15	0.46	1.14	0.41
3	2.58	1.01	2.59	1.14
4	1.70	0.77	1.71	0.82
5	2.32	1.05	2.36	1.18
6	1.39	0.66	1.34	0.64
		Boys (*n* = 230-233)		
1	1.97	1.07	1.77	0.96
2	1.28	0.65	1.18	0.46
3	2.40	1.05	2.09	0.98
4	1.83	0.95	1.75	0.85
5	2.02	1.12	1.91	1.13
6	1.58	0.85	1.46	0.80

Note. Description of each item can be found in Appendix A

Table 2

Pearson Product-Moment Correlation Coefficients Between Waves 1 and 2 Social Aggression Items for Boys and Girls

Girls (Boys)

Item	T1 1	T1 2	T1 3	T1 4	T1 5	T1 6	T2 1	T2 2	T2 3	T2 4	T2 5	T2 6
T1 1	1.00 (1.00)											
T1 2	.24** (.33**)	1.00 (1.00)										
T1 3	.45** (.45**)	.04 (.11)	1.00 (1.00)									
T1 4	.51** (.49**)	.30** (.33**)	.23** (.31**)	1.00 (1.00)								
T1 5	.30** (.30**)	.23** (.28**)	.37** (.24**)	.27** (.27**)	1.00 (1.00)							
T1 6	.31** (.35**)	.43** (.32**)	.25** (.21**)	.31** (.48**)	.50** (.42**)	1.00 (1.00)						
T2 1	.30** (.21**)	.19** (.17**)	.29** (.19**)	.22** (.28**)	.18** (.27**)	.21** (.27**)	1.00 (1.00)					
T2 2	.09 (.18**)	.31** (.25**)	.04 (.14*)	.08 (.04)	.09 (.17*)	.16* (.08)	.45** (.22**)	1.00 (1.00)				
T2 3	.23** (.09)	.19** (.12)	.44** (.13)	.16* (.10)	.25** (.14*)	.21** (.15*)	.56** (.42**)	.30** (.18**)	1.00 (1.00)			
T2 4	.26** (.13*)	.21** (.10)	.28** (.04)	.35** (.12)	.22** (.26**)	.29** (.04)	.58** (.53**)	.37** (.14*)	.53** (.32**)	1.00 (1.00)		
T2 5	.26** (.10)	.29** (.20**)	.27** (.11)	.29** (.13)	.48** (.44**)	.29** (.28**)	.42** (.29**)	.24** (.17**)	.47** (.26**)	.36** (.29**)	1.00 (1.00)	
T2 6	.26** (.06)	.38** (.16*)	.16** (.03)	.27** (.06)	.27** (.20**)	.36** (.18**)	.44** (.20**)	.42** (.16*)	.36** (.19**)	.48** (.29**)	.46** (.41**)	1.00 (1.00)

Note. Description of each item can be found in Appendix A. Boys' coefficients are in parentheses.
*$p < .05$ **$p < .01$

Table 3

Means and Standard Deviations of the Measured Variables in the Path-Analytic Model (N = 494-497)

Variable	Girls (*n* = 262-264)		Boys (*n* = 232-233)	
	M	*SD*	*M*	*SD*
Parent-Adolescent Conflict	1.66	0.78	1.63	0.83
Positive Family Relations	3.91	0.83	3.94	0.84
Maternal Psychological Control	1.33	0.37	1.34	0.35
Social Evaluative Anxiety	2.66	0.83	2.44	0.81
Depressive Symptoms	0.26	0.25	0.28	0.29
Social Aggression Time 1	1.83	0.53	1.85	0.65
Social Aggression Time 2	1.83	0.63	1.70	0.57

Table 4

Pearson Product-Moment Correlation Coefficients for Variables in the Path-Analytic Model for Boys and Girls

Girls (Boys)

Variable	Parent-Adolescent Conflict	Positive Family Relations	Maternal Psychological Control	Social Evaluative Anxiety	Depressive Symptoms	Social Aggression Time 1	Social Aggression Time 2
Parent-Adolescent Conflict	1.00 (1.00)						
Positive Family Relations	-.34** (-.44**)	1.00 (1.00)					
Maternal Psychological Control	.45** (.39**)	-.51** (-.45**)	1.00 (1.00)				
Social Evaluative Anxiety	.10 (.16*)	-.15* (-.29**)	.16* (.17*)	1.00 (1.00)			
Depressive Symptoms	.37** (.32**)	-.45** (-.62**)	.40** (.39**)	.48** (.51**)	1.00 (1.00)		
Social Aggression Time 1	.19** (.38**)	-.29** (-.43**)	.19** (.31**)	.27** (.46**)	.30** (.53**)	1.00 (1.00)	
Social Aggression Time 2	.17** (.14**)	-.26** (-.15*)	.09 (.07)	.17** (.13*)	.21** (.16*)	.53** (.39**)	1.00 (1.00)

Note. Boys' coefficients are in parentheses. *$p < .05$ **$p < .01$

Examining Family Structure

Descriptive analyses were conducted to determine if mean levels of parent-adolescent conflict, positive family relations, and maternal psychological control differed based on family structure. Responses for students living with both biological parents (n = 353) were compared to those for students living in non-intact family situations, including living with mother only, father only, part time with each parent, and foster parents (n= 129) for each of the parenting variables. Twelve students were missing family structure data and were not included in these analyses. Independent samples t-tests revealed no mean differences in parent-adolescent conflict [$t(479) = 1.77$, $p > .05$, $d = -.16$] or maternal psychological control [$t(478) = 1.61$, $p > .05$, $d = -.15$] between non-intact family structures when compared to intact two-parent families. However, there were significant mean differences in positive family relations between intact and non-intact family situations [$t(478) = 4.16$, $p < .01$, $d = .38$], with intact families ($M = 4.02$, $SD = .79$) having significantly higher mean levels of positive family relations than non-intact families ($M = 3.68$, $SD = .86$).

Once a difference between intact and non-intact families was found for positive family relations, the other variables in the model were examined for differences across family structure. It was found that there were significant mean differences between intact families and non-intact families in children's depressive symptoms [$t(185) = 3.41$, $p < .01$, $d = -.50$] and social evaluative anxiety [$t(204) = 2.11$, $p < .01$, $d = -.30$]. As would be expected, children of intact two-parent families ($M = .23$, $SD = .24$) had lower mean levels of depressive symptoms than non-intact families ($M = .34$, $SD = .31$) and children of intact two-parent families ($M = 2.50$, $SD = .79$) had lower mean levels of social

evaluative anxiety compared to non-intact families (M = 2.69, SD = .91). However, there were no significant differences between intact two-parent families and non-intact families in mean levels of social aggression at Wave 1 [$t(211) = 1.37$, $p > .05$, $d = -.19$] or Wave 2 [$t(207) = 1.01$, $p > .05$, $d = -.14$].

Results of Testing Hypotheses

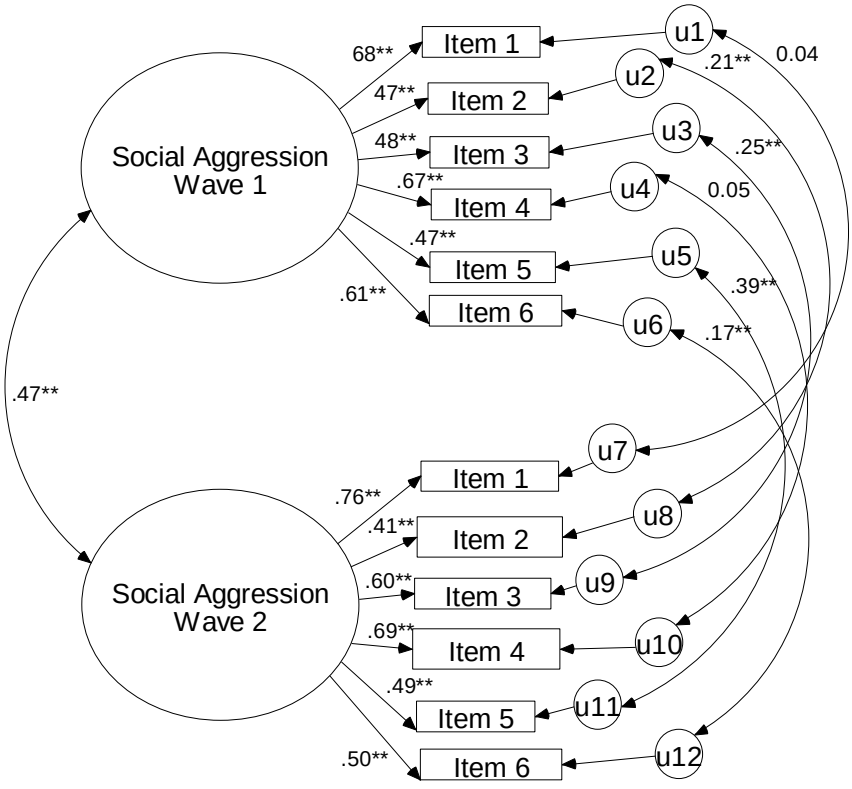
Hypotheses 1a and 1b

Hypotheses 1a was explored using confirmatory factor analysis by examining the significance of the covariance between the latent variables of Wave 1 social aggression and Wave 2 social aggression and the magnitude of the correlation. If the covariance was statistically significant and the correlation of moderate to large magnitude, then the stability of social aggression from Wave 1 to Wave 2 would be concluded. The six items assessing social aggression at each time point were used as the indicators of the corresponding latent social aggression variables. In addition to the covariance among the latent constructs, the error terms for each of the items at Wave 1 was correlated with the respective error terms of the corresponding item at Wave 2.

Analyses were calculated using the computer program Amos (*A*nalysis of *Mo*ment *S*tructures; Arbuckle, 2003; Arbuckle & Wothke, 1999). Model fit was evaluated using two absolute fit indices, the standardized root mean square residual (SRMR) and the root mean square error of approximation (RMSEA), as well as two incremental fit indices, the Tucker-Lewis Index (TLI) and the comparative fit index (CFI). An absolute fit index assess how well a model reproduces the sample data without comparison to a reference model whereas an incremental fit index compares the target model to a more restricted baseline model (Hu & Bentler, 1999). In addition, the Akaike Information Criterion

(AIC), a useful cross-validation index was examined, because it selects models that would be chosen if results were cross-validated to a new sample. For the AIC, the model with the smaller number indicates a better fit. Examination of the hypothesized stability model indicated that the model did not fit the data well. Although the CFI and SRMR were acceptable (.90 and .06, respectively), the chi-square was significant [χ^2 (47, N = 497) = 180.599, $p < .001$] and the TLI was unacceptably small (.87). Figure 10 below shows the standardized results from the initial stability model.

Figure 10. Initial confirmatory factor analysis: Standardized results



Note. $**p < .01$

Modification indices for the initial model suggested freeing four covariances of errors that were theoretically justified: u11 (error variance for Wave 2 social aggression item 5- "How often do you roll your eyes at other kids") with u12 (error variance for

Wave 2 social aggression item 6- "How often do you make mean faces at other kids to hurt their feelings"); u5 (error variance for Wave 1 social aggression item 5- "How often do you roll your eyes at other kids") with u6 (error variance for Wave 1 social aggression item 6- "How often do you make mean faces at other kids to hurt their feelings"); u3 (error variance for Wave 1 social aggression item 3- "When you're mad at someone, how often do you ignore them or stop talking to them") with u5 (error variance for Wave 1 social aggression item 5 described above); and u9 (error variance for Wave 2 social aggression item 3- "When you're mad at someone, how often do you ignore them or stop talking to them") with u11 (error variance for Wave 2 social aggression item 5 described above). Logically, the first two modifications involved items measuring nonverbal behaviors (i.e., rolling your eyes at others and making negative facial expressions at others) that may be related beyond what is captured by the latent variable of social aggression. Similarly, the errors included in the last two modifications (u3 and u5 at Wave 1; u9 and u11 at Wave 2) involved items that were nonverbal and individually mediated, as opposed to using the social structure to inflict harm (i.e., ignoring and rolling your eyes at others). Chi-square difference tests were conducted after adding each modification to the model to ensure that it significantly improved the fit of the model (see Table 5 below).

Table 5

Chi-Square Difference Tests for Stability Model Modifications

Model	χ^2	*df*	$\Delta\chi^{2a}$	Δdf	*p*	RMSEA	AIC
Initial	180.599	47				.077	266.599
Modification: Free Covariance u11-u12	162.005	46	18.594	1	<.001	.073	250.005
Modification: Free Covariance u5-u6	150.909	45	11.096	1	<.001	.070	240.909
Modification: Free Covariance u3-u5	143.424	44	7.485	1	.006	.069	235.424
Modification: Free Covariance u9-u11	133.00	43	10.424	1	.001	.066	227.00

[a]Compared to the previous model

Although the chi-square remained significant [$\chi^2(43, N=497) = 133.00, p<.001$], the modifications to the model significantly improved the fit; the RMSEA was .07, the SRMR was .05, the TLI was .90, and the CFI was .94. As shown in Figure 10, all of the factor loadings from the latent variables were statistically significant ($p < .01$), as was the covariance between the latent variables Wave 1 social aggression and Wave 2 social aggression. The correlation between Wave 1 and Wave 2 social aggression was a moderate magnitude and statistically significant correlation suggesting stability of the latent social aggression variable across the one year period.

Hypothesis 1b was explored using a measurement invariance test by comparing the model across the two groups (girls and boys). Hypothesis 1b predicted that there would be no differences between boys and girls in the stability of self-reported social aggression from Wave 1 to Wave 2. Prior to examining the invariance of the models across gender, the fit of the model for boys and girls was estimated. Results from this analysis showed that the TLI was .85. However, the RMSEA was .06 and the CFI was .92, suggesting an adequate fit. A multi-step procedure was then conducted to determine

whether the hypothesized model was invariant across gender. As shown in Table 6, step 1 used the chi-square difference test to examine the invariance of the factor loadings of the model across groups and did not reveal a significantly worse fit, a finding that suggests the selection of the more parsimonious model. In other words, the factor loadings were not significantly different across boys and girls. As shown in Table 6, step 2 tested the invariance of the covariance between the latent variables of Wave 1 and Wave 2 social aggression across the boys' and girls' data. Constraining this covariance to be equal between boys and girls did not lead to significantly worse fit. Therefore the most parsimonious model was chosen, with that model suggesting equivalent stability of social aggression for boys and girls.

Table 6

Chi-Square Difference Tests for Invariance Across Multisample Confirmatory Factor Models for Girls and Boys

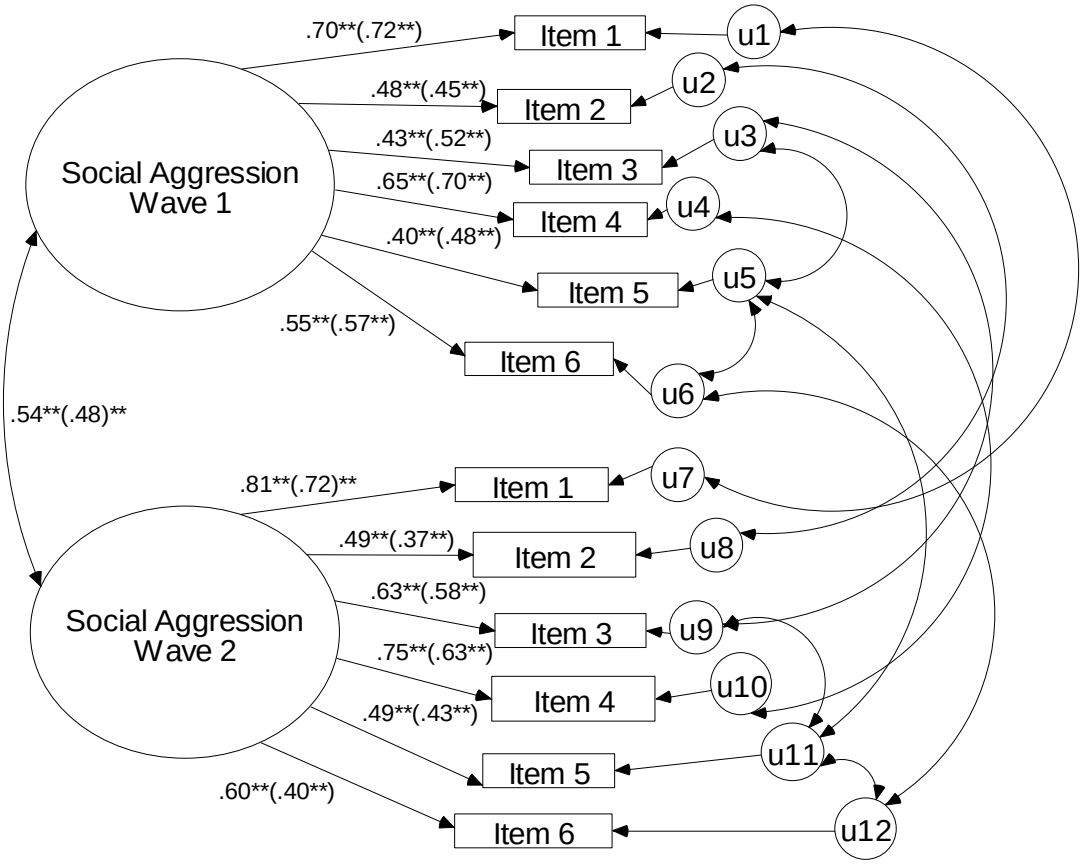
Step	Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	RMSEA	TLI	CFI	AIC
	Initial Multisample	216.66	86				.06	.85	.92	404.66
1	Factor Loadings Constrained	229.51	96	12.85	10	.23	.05	.86	.91	397.51
2	Constrained Cov. Soc Agg T1-T2	229.51	97	.00	1	1.00	.05	.86	.91	395.51

Note. The $\Delta\chi^2$ compared the alternative models to the previous model.

Results from this final model indicate that there were no significant differences between boys and girls on the factor loadings and all of the factor loadings remained significant ($p < .01$) (see Figure 11). Social aggression was reasonably well measured with all factor loadings above .39 for girls and .37 for boys. Additionally, the covariance

between the latent variables of social aggression at Waves 1 and 2 remained significant ($p < .01$) for both boys and girls. In other words social aggression was stable from Waves 1 to 2 and was not significantly different for boys and girls (see Figure 11).

Figure 11. Final multi-group confirmatory factor analysis model for boys and girls: Standardized results



Note. Boys' coefficients are in parentheses. $^{**}p < .001$

Testing the Path Model

Path analysis is a straightforward extension of multiple regression. Its aim is to provide estimates of the magnitude and significance of hypothesized causal connections among sets of variables. This is best explained by considering a path diagram. Variables in rectangles in the diagram are measured variables and paths are drawn from each

variable to any other variables they may affect. As shown in Figures 12 through 18, the measured variables of parent-adolescent conflict, positive family relations, and maternal psychological control were hypothesized directly to affect social evaluative anxiety, symptoms of depression, and the outcome variable of Wave 2 social aggression. Additionally, the direct effects of social evaluative anxiety and depressive symptoms on Wave 2 social aggression were examined. Because Wave 1 social aggression is included in the model, any significant effects to Wave 2 social aggression would be above and beyond Wave 1 social aggression. Thus, in essence, the model examines the effect of these variables on change in social aggression between Wave 1 and Wave 2.

The overall results of the path analyses, with model constraints across the sexes, will be first described. Following this presentation the results will be used to address the hypotheses pertaining to the path analytic results (Hypotheses 2 through 6).

To determine if there were statistically significant differences between boys and girls in the direct effects of this model, multi-sample analyses were conducted where the chi-square difference test assessed whether any of the paths were significantly different between the groups in the sample. The initial model is one in which each path was allowed to differ between boys and girls. This model was compared to models in which such paths were constrained to be equal between the two groups (one path at a time). After constraining each path the model fit was examined. If the constrained model had significantly worse fit, then the conclusion would be that the path is significantly different across groups, meaning that there was an interaction effect of gender. The steps of this chi-square difference test are shown below in Table 7. Each model was compared to the previous model in the table unless the previous path resulted in a statistically

Table 7

Chi-Square Difference Tests for Invariance Across Multisample Path Analytic Models for Girls and Boys

Step	Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	RMSEA	TLI	CFI	AIC
	Initial Multisample	.00	0				.00	1.00	1.00	140.00
1	Constrained Path: Parent-Adolescent Conflict to Social Aggression-T2	.83	1	.83	1	.36	.00	1.01	1.00	138.83
2	Constrained Path: Positive Family Relations to Social Aggression-T2	2.99	2	2.16	1	.14	.03	.97	1.00	138.99
3	Constrained Path: Maternal Psychological Control to Social Aggression-T2	3.00	3	.01	1	.92	.00	1.00	1.00	137.00
4	Constrained Path: Parent-Adolescent Conflict to Social Evaluative Anxiety	3.01	4	.01	1	.92	.00	1.02	1.00	135.01
5	Constrained Path: Positive Family Relations to Social Evaluative Anxiety	5.44	5	2.43	1	.12	.01	.99	1.00	135.44
6	Constrained Path: Maternal Psychological Control to Social Evaluative Anxiety	5.59	6	.15	1	.70	.00	1.01	1.00	133.59
7	**Constrained Path: Parent-Adolescent Conflict to Depressive Symptoms**	**10.03**	**7**	**4.44**	**1**	**.04**	**.03**	**.97**	**1.00**	**136.03**
8	**Constrained Path: Positive Family Relations to Depressive Symptoms** *Note.* The $\Delta\chi^2$ compared this model to the model in step 6	**14.93**	**7**	**9.34**	**1**	**<.01**	**.05**	**.92**	**.99**	**140.93**
9	Constrained Path: Maternal Psychological Control to Depressive Symptoms *Note.* The $\Delta\chi^2$ compared this model to the model in step 6	5.68	7	.09	1	.76	.00	1.01	1.00	131.68
10	Constrained Path: Social Evaluative Anxiety to Social Aggression-T2	6.14	8	.46	1	.50	.00	1.02	1.00	130.14
11	Constrained Path: Depressive Symptoms to Social Aggression-T2	8.19	9	2.05	1	.15	.00	1.01	1.00	130.19
12	**Constrained Path: Social Aggression-T1 to Social Aggression-T2**	**20.61**	**10**	**12.42**	**1**	**<.01**	**.05**	**.93**	**.99**	**140.61**

Note. The $\Delta\chi^2$ compared the alternative model to the previous model unless otherwise noted. Bolded steps were significant and freed up to vary between groups.

significantly worse fitting model. In that circumstance, the particular path that resulted in a worse fit was freed to vary between groups. The following step would be compared to the last model that did not lead to a significantly worse fit.

Examining the results in Table 7 shows that when constraining each of the paths to be equal between boys and girls only three paths led to a statistically worse fitting model (Steps 7, 8, and 12). Step 7 revealed that the direct effect of parent-adolescent conflict on depressive symptoms was significantly different across the groups, with girls having a stronger effect than boys (girls: $\beta = .19$, $b = .06$, $p < .01$, boys: $\beta = .03$, $b = .01$, $p = .54$). Step 8 also showed that the direct effect of positive family relations to depressive symptoms was statistically different between boys and girls; however for this path the effect was stronger for boys than for girls (boys: $\beta = -.52$, $b = -.18$, $p < .01$, girls: $\beta = -.34$, $b = -.10$, $p < .01$). Lastly, the results from Step 12 suggested that the direct effect of Wave 1 social aggression to Wave 2 social aggression was statistically significantly different between boys and girls, with girls having the stronger effect than boys (girls: $\beta = .54$, $b = .61$, $p < .01$, boys: $\beta = .35$, $b = .32$, $p < .01$). Because the three paths were significantly different in magnitude for boys and girls, they were freed to vary in subsequent models. All other paths (shown in Steps 1-6 and 9-11) were constrained to be equal in the subsequent models.

A series of models were also compared to determine whether the covariances between each of the exogenous variables (i.e., the three parenting variables and Wave 1 social aggression) in the model were equivalent for boys and girls, or if a more parsimonious model could be achieved by constraining the covariances across groups. This series of analyses is summarized in Table 8. In Table 8, Steps 13-15, 17, and 19-21

showed that there were no significant differences between boys and girls in these covariances; thus, they were constrained to be equal across groups in subsequent analyses. However, in Table 8, Steps 16 and 18 showed statistically significant differences in the covariances between boys and girls. Therefore, these steps were rejected and the covariances were freed between the groups in subsequent analyses. Step 16 revealed that the covariance between maternal psychological control and Wave 1 social aggression was stronger for boys ($r = .30$, $cov = .07$, $p < .01$) than for girls ($r = .21$, $cov = .04$, $p < .01$). Similarly, Step 18 exhibited that the covariance of parent-adolescent conflict to Wave 1 social aggression was significantly different between boys and girls, with the boys ($r = .36$, $cov = .18$, $p < .01$) having a stronger covariance than the girls ($r = .22$, $cov = .10$, $p < .01$). The final model is shown in Figure 12. In the figure, paths and covariances that were significantly different across groups are bolded, whereas those shown without bolding were not significantly different across groups.

Table 8

Chi-Square Difference Tests for Invariance Across Covariances in the Path-Analytic Model for Girls and Boys

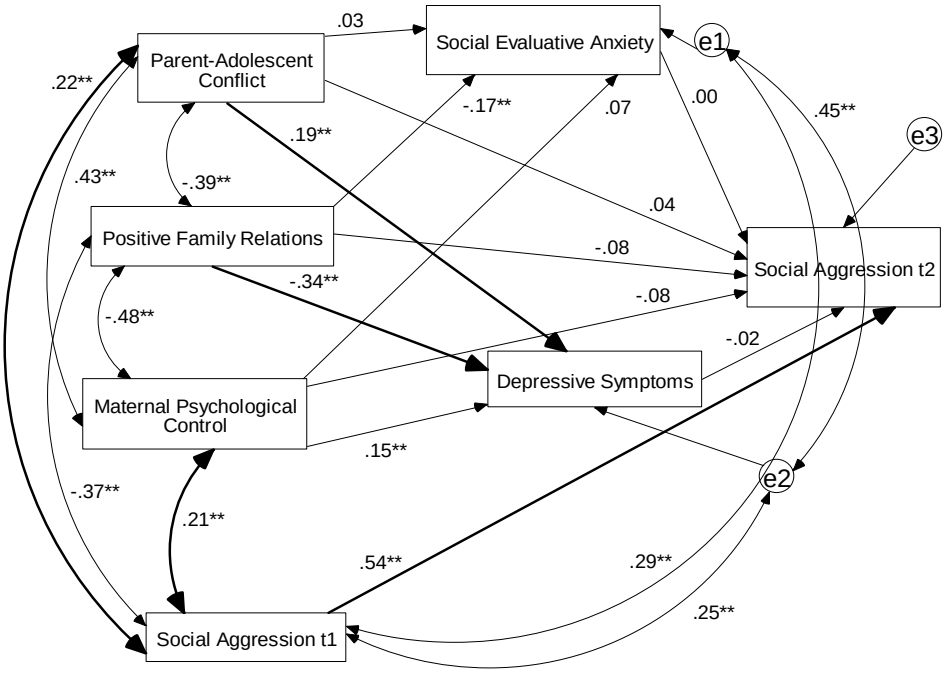
Step	Model	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	RMSEA	TLI	CFI	AIC
	Model at Step 11	8.19	9				.00	1.01	1.00	130.19
13	Constrained Cov: Parent-Adolescent Conflict to Positive Family Relations	10.05	10	1.86	1	.17	.00	1.00	1.00	130.05
14	Constrained Cov: Positive Family Relations to Maternal Psychological Control	12.39	11	2.34	1	.13	.02	.99	1.00	130.39
15	Constrained Cov: Parent-Adolescent Conflict to Maternal Psychological Control	13.43	12	1.04	1	.31	.02	.99	1.00	129.43
16	**Constrained Cov: Maternal Psychological Control to Social Aggression-T1**	**18.63**	**13**	**5.20**	**1**	**.03**	**.03**	**.97**	**.99**	**132.63**
17	Constrained Cov: Positive Family Relations to Social Aggression-T1 *Note.* The $\Delta\chi^2$ compared this model to the model in step 15	16.91	13	3.48	1	.06	.03	.98	1.00	130.91
18	**Constrained Cov: Parent-Adolescent Conflict to Social Aggression-T1**	**21.82**	**14**	**4.91**	**1**	**.03**	**.03**	**.96**	**.99**	**133.82**
19	Constrained Cov: Social Aggression-T1 to e1 *Note.* The $\Delta\chi^2$ compared this model to the model in step 17	20.40	14	3.49	1	.06	.03	.97	.99	132.40
20	Constrained Cov: Social Aggression-T1 to e2	22.81	15	2.41	1	.12	.03	.97	.99	132.81
21	Constrained Cov: e1 to e2	25.31	16	2.5	1	.11	.03	.96	.99	133.31

Note. The $\Delta\chi^2$ compared the alternative model to the previous model unless otherwise noted. Bolded steps were significant and freed up to between groups.

The estimation of this final partially constrained model for boys and girls resulted in an excellent fit to the data [χ^2(16, girls n = 264 and boys n = 233) = 25.31, p = .07]. The TLI was .96, the CFI was .99, and the RMSEA was .03. Examination of the final model indicated that for girls, there was a statistically significant positive direct effect from parent-adolescent conflict to depressive symptoms (β = .19, b = .06, p < .01). There

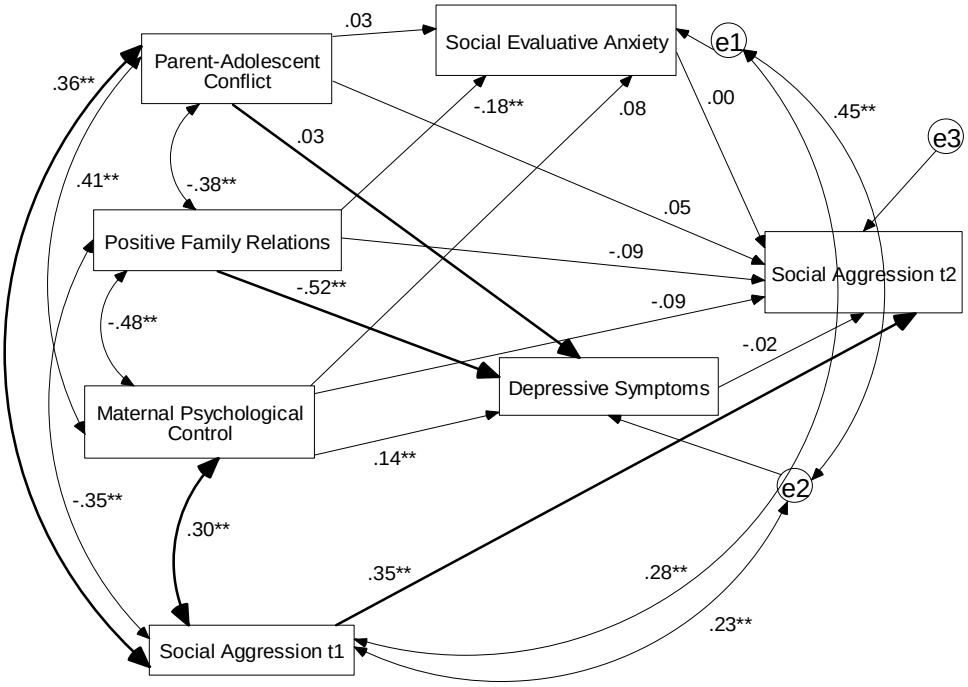
was a significant negative direct effect from positive family relations to depressive symptoms for both girls and boys (girls: β = -.34, *b* = -.10, *p* < .01, boys: β = -.52, *b* = -.18, *p* < .01), although this direct effect was significantly stronger for boys than for girls. There was a significant positive direct effect from maternal psychological control to depressive symptoms for both girls and boys (girls: β = .15, *b* = .11, *p* < .01, boys: β = .14, *b* = .11, *p* < .01) and this effect was not significantly different between boys and girls. Positive family relations also significantly negatively affected social evaluative anxiety for both girls and boys (girls: β = -.17, *b* = -.17, *p* < .01, boys: β = -.18, *b* = -.17, *p* < .01) and this effect was not significantly different between boys and girls. Wave 1 social aggression positively affected Wave 2 social aggression for both girls and boys (girls: β = .54, *b* = .61, *p* < .01, boys: β = .35, *b* = .32, *p* < .01), although this effect was significantly different between boys and girls. There were no other statistically significant direct or indirect effects in the final model. Last, all of the covariances in the model were statistically significant at the .01 level. The boys' and girls' standardized results are shown below in Figures 12 and 13 respectively.

Figure 12. Girls' final path-analytic model: Standardized results with relevant constraints across groups



Note. Bolded paths are significantly different between boys and girls. $^{**}p < .01$

Figure 13. Boys' final path-analytic model: Standardized results with relevant constraints across groups



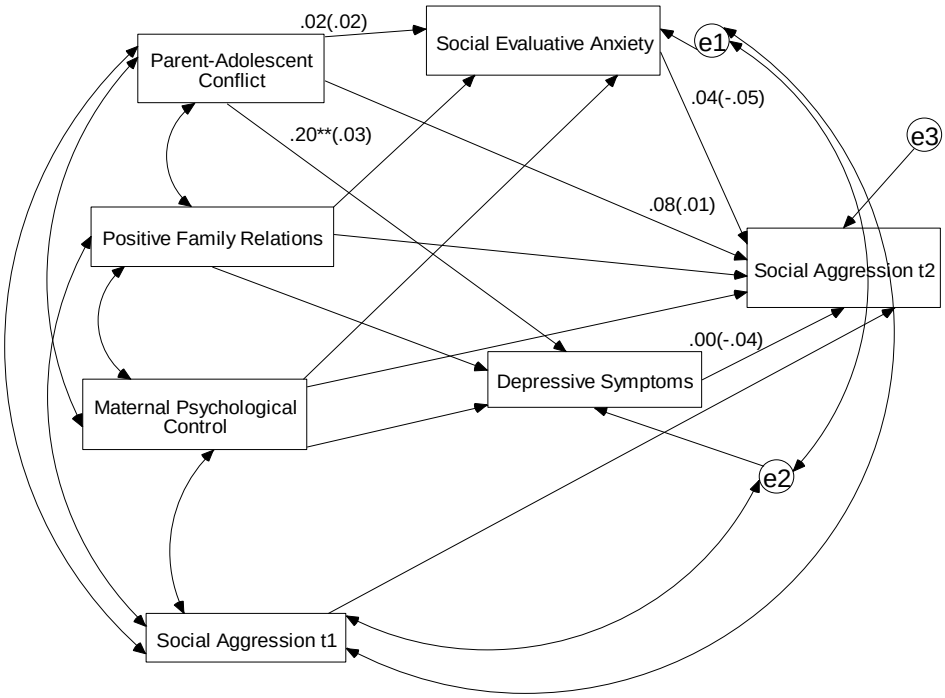
Note. Bolded paths are significantly different between boys and girls. $^{**}p < .01$

Mapping Results to Hypotheses

Hypotheses 2a, 2b, and 2c

Hypothesis 2a was that parent-adolescent conflict would affect social aggression at a statistically significant level. When the boys and girls groups were not constrained to be equal, parent-adolescent conflict did not have a significant direct or indirect effect on social aggression at Wave 2 for either group (see Figure 14).

Figure 14. Initial path-analytic model: Standardized results of the influence of parent-adolescent conflict on wave 2 social aggression with no path constraints across groups



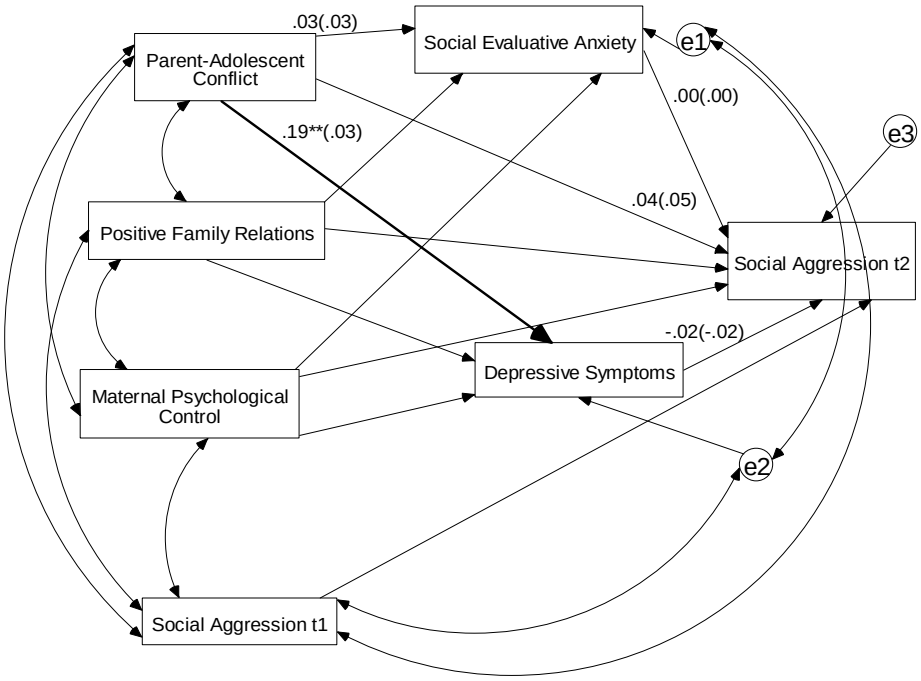
Note. Boys' coefficients are in parentheses. $^{**}p < .01$

Hypothesis 2b predicted that the direct effect of parent-adolescent conflict on social aggression would be different for boys and girls. Hypothesis 2c predicted that depressive symptoms would partially mediate the effect of parent-adolescent conflict on social aggression for girls, but that for boys, parent-adolescent conflict would directly

affect social aggression. As previously described in the overall model (shown in Table 7), Step 1 used the chi-square difference test to examine the invariance of the direct effect of parent-adolescent conflict to Wave 2 social aggression across groups and did not reveal a significant difference across groups. Therefore, there was no statistically significant difference between boys and girls in the direct effect of parent-adolescent conflict to Wave 2 social aggression. Moreover, when examining the indirect effects, there were no significant indirect effects for boys or girls. Therefore, both hypotheses 2b and 2c were not supported by these results.

Figure 15 shows the paths (standardized results) from the final model pertaining to these hypotheses. The final model, as previously discussed, is the most parsimonious model where the paths that were not significantly different between boys and girls remain constrained and the paths that were significantly different between boys and girls are free to vary between the groups (bolded paths).

Figure 15. Final path-analytic model: Standardized results of the influence of parent-adolescent conflict on wave 2 social aggression with relevant constraints across groups

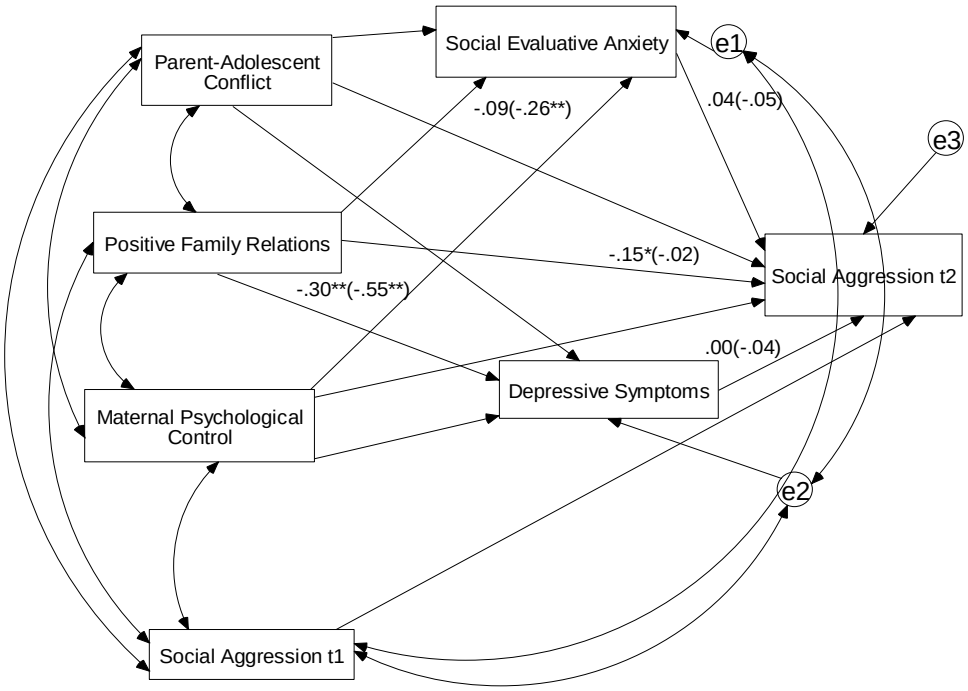


Note. Bolded paths are significantly different between boys and girls. Boys' coefficients are in parentheses. ****$p < .01$

Hypotheses 3a, 3b, and 3c

Hypothesis 3a was that positive family relations would have a significant negative effect on social aggression. When the boys and girls models were not constrained to be equal, positive family relations did indeed have a significant negative direct effect on Wave 2 social aggression for girls only ($\beta = -.15$, $b = -.11$, $p < .05$; see Figure 15), although there was not a significant indirect effect for girls. For boys, positive family relations did not have a significant direct or indirect effect on social aggression at Wave 2 for (see Figure 16).

Figure 16. Initial path-analytic model: Standardized results of the influence of positive family relations on wave 2 social aggression with no path constraints across groups



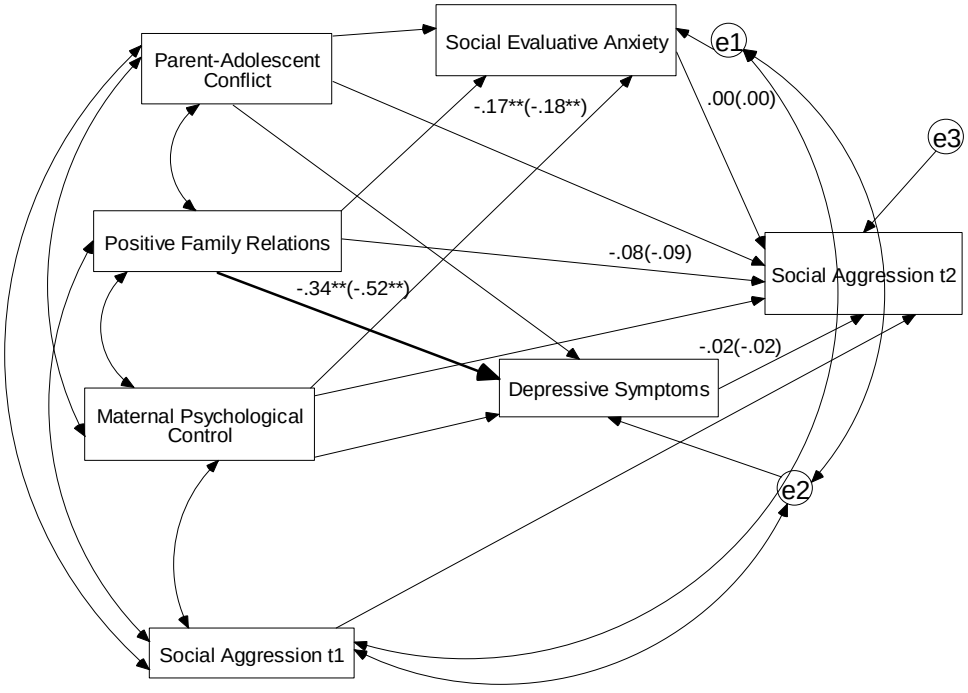
Note. Boys' coefficients are in parentheses. $^{**}p < .01$ $^{*}p < .05$

Hypotheses 3b and 3c predicted that the effect of positive family relations on social aggression would be different for boys and girls. Specifically, for girls, symptoms of depression were predicted to partially mediate the effect of positive family relations on social aggression. For boys, their ratings of positive family relations were predicted to affect social aggression directly. As previously described in the overall model and shown in Table 7, Step 2 used the chi-square difference test to examine the invariance of the direct effect of positive family relations to Wave 2 social aggression across groups and did not reveal a significantly worse fit. Therefore, there was no statistically significant difference between boys and girls in the direct effect of positive family relations to Wave 2 social aggression. Moreover, when examining the indirect effects, there were no

significant indirect effects for boys or girls. Therefore, both hypotheses 3b and 3c were not supported by these results.

Of note, constraining the groups to be equal in the effect of positive family relations on Wave 2 social aggression caused the previous significant negative effect from positive family relations to Wave 2 social aggression for girls to become nonsignificant (β = -.08, *b* = -.06, *p* =.09). Figure 17 shows the paths (standardized results) from the final model pertaining to these hypotheses. The final model, as previously discussed, is the most parsimonious model where the paths that were not significantly different between boys and girls remained constrained and the paths that were significantly different between boys and girls were free to vary between the groups (bolded paths).

Figure 17. Final path-analytic model: Standardized results of the influence of positive family relations on wave 2 social aggression with relevant constraints across groups

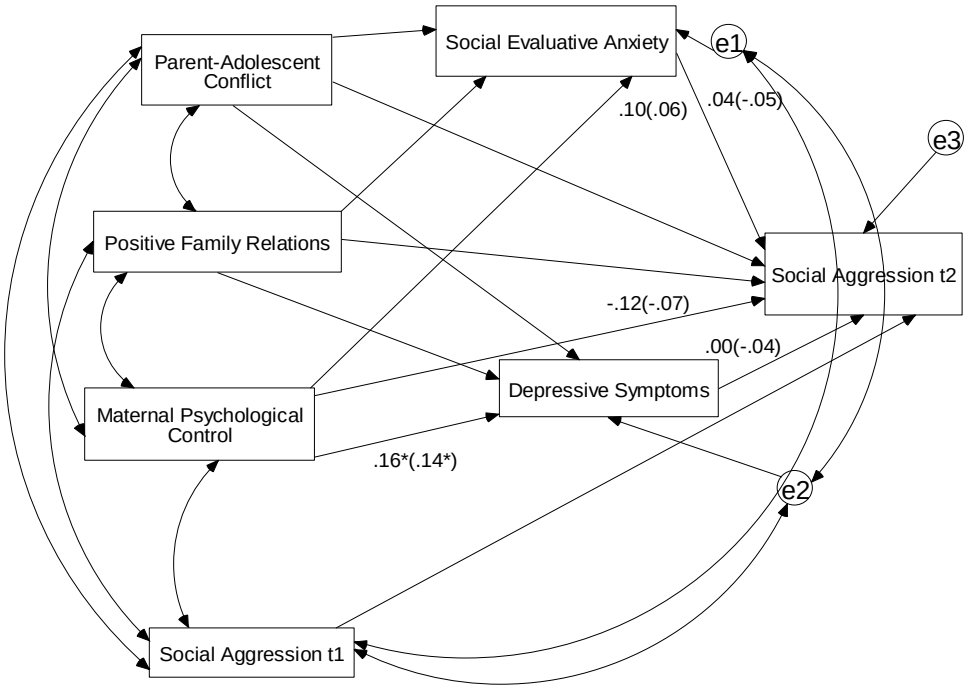


Note. Bolded paths are significantly different between boys and girls. Boys' coefficients are in parentheses. **$p < .01$

Hypotheses 4a, 4b, and 4c

Hypotheses 4a and 4b predicted that maternal psychological control would have a significant effect on social aggression for girls only and hypothesis 4c predicted that social evaluative anxiety would mediate the effect of maternal psychological control on social aggression for girls. When the boys and girls groups were not constrained to be equal, there were no statistically significant direct or indirect effects of maternal psychological control on Wave 2 social aggression for boys or girls (see Figure 18).

Figure 18. Initial path-analytic model: Standardized results of the influence of maternal psychological control on wave 2 social aggression with no path constraints across groups



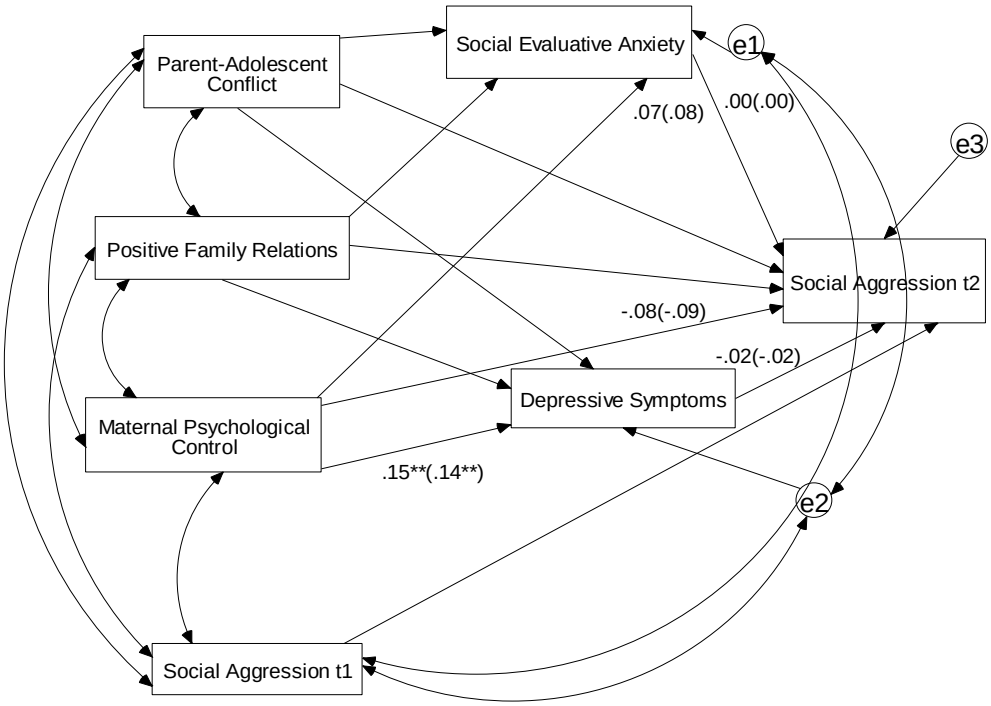
Note. Boys' coefficients are in parentheses. $^{**}p < .01$ $^{*}p < .05$

As previously described in the overall model and shown in Table 7, Step 3 used the chi-square difference test to determine if there were significant differences between

boys and girls in the direct effect of maternal psychological control to Wave 2 social aggression and did not reveal a significantly worse fit. Therefore, there was no statistically significant difference between boys and girls in the direct effect of maternal psychological control to Wave 2 social aggression. Moreover, the indirect effects from maternal psychological control to Wave 2 social aggression were not significant. Therefore, the hypotheses 4a, 4b, and 4c were not supported by these results.

Figure 19 shows the paths (standardized results) from the final model pertaining to these hypotheses. None of the paths relating to these hypotheses were significantly different between boys and girls.

Figure 19. Final path-analytic model: Standardized results of the influence of maternal psychological control on wave 2 social aggression with relevant constraints across groups



Note. Boys' coefficients are in parentheses. $^{**}p < .01$ $^{*}p < .05$

Hypotheses 5a and 5b

Hypothesis 5a predicted that depressive symptoms would significantly effect social aggression. When the boys and girls groups were not constrained to be equal, the effect of depressive symptoms on Wave 2 social aggression did not have a significant direct or indirect effect for either group (standardized coefficients for boys and girls are shown in Figures 14, 16, and 18).

Hypothesis 5b predicted that there would be no gender differences in the effect of depressed mood on social aggression. As previously discussed in the overall model and shown in Table 7, Step 11 used the chi-square difference test to examine the invariance of the direct effect of depressive symptoms to Wave 2 social aggression across groups and did not reveal a significantly worse fit. Therefore, hypothesis 5b was supported by these results in that there was no significant difference between boys and girls in how depressive symptoms effect Wave 2 social aggression. The path relating to these hypotheses in the final model was not significantly different between boys and girls, although it was nonsignificant for both. The standardized results for this path are shown in Figures 15, 17, and 19.

Hypotheses 6a and 6b

Hypothesis 6a predicted that social evaluative anxiety would have a significant effect on social aggression. When the boys and girls groups were not constrained to be equal, the direct or indirect effects of social evaluative anxiety on Wave 2 social aggression were not significant for either group (standardized coefficients for boys and girls are shown in Figures 14, 16, and 18).

Hypothesis 6b predicted that there would be no gender differences in the effect of social evaluative anxiety on social aggression. As previously discussed in the overall model and shown in Table 7, Step 10 used the chi-square difference test to examine the invariance of the direct effect of social evaluative anxiety to Wave 2 social aggression across groups and did not reveal a significantly worse fit. Therefore, hypothesis 6b was supported by these results in that there was no significant difference between boys and girls in how social evaluative anxiety affected Wave 2 social aggression. The effect, however, was nonsignificant for both groups. The standardized results for this path when constrained to be equal across groups may be found above in Figures 15, 17, and 19.

CHAPTER 5

Discussion

Aggression has been consistently related to negative individual and interpersonal outcomes in children and adults. More recently, researchers have been examining social aggression, a covert subtype of aggression characterized by relationally aggressive behaviors, like spreading rumors and social exclusion, and non-verbal tactics such as making negative facial expressions and gestures. This form of aggression was initially thought to be used primarily by girls (Bjorkqvist et al., 1992; Coyne et al., 2006; Crick, 1997; Crick & Grotpeter, 1995; Murray-Close et al., 2006), but some researchers have found no gender differences in the use of social aggression (Galen & Underwood, 1997; Loukas et al., 2005; Prinstein et al., 2001) while other studies have shown that males are more socially aggressive than females (Loudin et al., 2003; Tomada & Schneider, 1997). Despite controversy in the measurement of social aggression, children report this behavior to be hurtful and evidence indicates that it is associated with social maladjustment such as peer rejection and internalizing and externalizing problems (Crick, 1995; Crick, 1997; Crick & Grotpeter, 1995; Murray-Close et al., 2007). Researchers have examined the consequences of this form of aggression; however, relatively few studies have looked at the etiology of social aggression. Guided by the social information-processing theory and coercion theory, this study examined the factors contributing to this form of aggression.

There is a large literature base examining the contribution of family factors to overt aggression and antisocial tendencies. Familial conflict, little positive parental involvement, parental psychological control, and low levels of family cohesiveness have

been shown to be positively related to overt aggression (Coie & Dodge, 1998; Dishion, 1990; Patterson et al., 1989). Coercive family processes where children learn antisocial behavior patterns from maladaptive interactions with their parents have been empirically shown to predict overt aggression, antisocial behaviors, and depression (for girls only) (Compton et al., 2003; Leve & Fagot, 2001; McFadyen-Ketchum et al., 1996; Patterson, 1982). Yet, little research has been conducted to determine the influence of family process on social aggression.

This study examined the affects of family factors such as, parent-adolescent conflict, positive family relations, and maternal psychological control on subsequent social aggression one year later and after controlling for baseline levels of social aggression. Individual self-reported symptoms of depression and social evaluative anxiety were also incorporated in the model to determine if the effects of the family variables on social aggression were mediated by the individual emotional adjustment of the adolescent. This study also compared how this model fit for boys and girls, due to the inconsistencies in gender differences and social aggression in the literature. The stability of social aggression over a one year period was also examined. If these problems prove to be stable, as suggested by the literature on overt aggression, it is possible that without intervention, socially aggressive children are likely to remain aggressive over time (Crick, 1996).

Stability and Measurement of Social Aggression

Consistent with previous research, this study found that the latent variable social aggression was moderately stable over the course of a one year period for both boys and girls. Past research has shown that intraindividual differences in relational aggression

during middle childhood are moderately stable and comparable to those for physical aggression over one-month, six-month (Crick, 1996), 12 month (Werner & Crick, 2004), and 18 month intervals (Crick et al., 2006). Extending existing research, the current study also showed that the level of stability of the latent variable was comparable across gender. Moreover, the factor loadings for each of the items were statistically significant indicating that the scale was reasonably well measured and there were no differences in the magnitude of the loadings across boys' and girls' data. The factor loadings were not as high, however, as what Crick and Grotpeter (1995) found in their original study when examining their relational aggression peer nomination instrument. The factor loadings of the four items on Crick and Grotpeter's relational aggression peer nomination instrument, which were the same four items adapted for use in this study, ranged from .73 to .84. In the current study, the factor loadings of these four items in self-report form ranged from .37 to .80. The two additional social aggression items used in the current study assessing the nonverbal aspects of social aggression (Galen & Underwood, 1997) had similar statistically significant factor loadings ranging from .39 to .59 (Item 5- "How often do you roll your eyes at other kids" and Item 6- "How often do you make mean faces at other kids to hurt their feelings"). Although Galen and Underwood (1997) did not conduct a factor analysis on these items, previous research had demonstrated that the nonverbal aspects of social aggression were strongly positively correlated with peer nominations for relational aggression. Additionally, vignette measures including nonverbal examples of social aggression exhibited high internal consistency (Galen & Underwood, 1997).

Interestingly, when attempting to improve the fit of the Stability Model, model modifications suggested correlating the error variances between Galen and Underwood's (1997) two social aggression items at Wave 1 and Wave 2, indicating that there is something that these two items had in common beyond what is captured by the latent variable of social aggression. This 'something' is likely that both items assess nonverbal behaviors. Additionally, the model modifications suggested correlating the error variances between social aggression item 5 and Crick and Grotpeter's (1995) relational aggression item 3 ("When you're mad at someone, how often do you ignore them or stop talking to them") at Wave 1 and Wave 2. This also indicates that these items had something in common beyond what is captured by their relationship with the latent social aggression variable. The 'something' that items 3 and 5 have in common may be that these items are more covert than the other items. Children may not realize that their socially aggressive peer rolled their eyes at them or is ignoring them, whereas making a mean face or excluding the victim is more clearly directed at the target.

In the path model used to analyze the relationships between the measured variables in this study, the effect from Wave 1 social aggression to Wave 2 social aggression was also significant for both boys and girls providing another indication that social aggression was relatively stable over the course of a year. However, this effect was significantly stronger for the girls' model than it was for the boys'. This finding was surprising given that the confirmatory factor analysis showed that there was no statistically significant gender difference in the covariance between Waves 1 and 2 social aggression and no gender differences in the factor loadings. The results from the path model exhibit that the effect of Wave 1 social aggression on Wave 2 social aggression is

just slightly stronger for girls in comparison to boys, although their correlation is statistically equivalent. This may indicate that there is more change in boys' mean levels of social aggression over a year period when compared to girls, however social aggression remains stable for both boys and girls.

Family Factors and Social Aggression

Parent-Adolescent Conflict

Contrary to expectations, parent-adolescent conflict did not have a significant direct or indirect effect on Wave 2 social aggression after controlling for Wave 1 social aggression. Additionally, these paths did not significantly differ between boys and girls. However, parent-adolescent conflict was significantly positively related to Wave 1 social aggression and this correlation was significantly different between boys and girls with boys having the stronger correlation. These findings indicate that parent-adolescent conflict is significantly related to concurrent levels of social aggression, which in turn is relatively stable over a one year period. Additionally, the stable relationship between parent-adolescent conflict and Wave 1 social aggression took up much of the variance making it difficult to find a significant finding between parent-adolescent conflict and Wave 2 social aggression. Little research has examined the influence of family relationships on social aggression, but results from one study are also consistent with this study where the researchers found negative maternal affect to result in increased teacher rated relational aggression at one time point (Brown, Arnold, Dobbs, & Doctoroff, 2007).

In addition to its concurrent association with Wave 1 social aggression, parent-adolescent conflict was also positively related to boys' and girls' depressive symptoms. Interestingly, this relationship was stronger for girls than for boys, corroborating prior

research showing that increased family problems are linked to internalizing symptoms, particularly for girls (Compton et al., 2003; Davis et al., 2002, Sheeber & Sorenson, 1998). Neither depressive symptoms nor social evaluative anxiety were linked to the outcome variable of Wave 2 social aggression, thus the mediational hypothesis was not supported.

Positive Family Relations

The current study found that positive family relations had a significant negative direct effect on Wave 2 social aggression above and beyond the effects of Wave 1 social aggression for girls, but not for boys when the groups were not constrained to be equal. However, the paths between boys and girls were not statistically significantly different from each other. These results are somewhat confusing since this direct effect was only significant for girls. Conflicting findings are due to the fact that the statistical analyses were different in that the first is testing whether the effect of positive family relations to Wave 2 social aggression was significantly different from zero (the null hypothesis) and the second analysis was testing whether the effect of positive family relations to Wave 2 social aggression was significantly different between boys and girls. Therefore, the significant effect between positive family relations to Wave 2 social aggression for girls is a meaningful significant effect and should be interpreted. Additionally, positive family relations were also significantly negatively related to Wave 1 social aggression for boys and for girls. All together theses results indicated that positive family relations have a significant relationship with Wave 1 social aggression, but that this relationship gets stronger over the course of a year for girls. Additionally, the effect of positive family relations to Wave 2 social aggression for girls was not mediated by depressive symptoms

or social evaluative anxiety. This suggests that positive family relations are quite important and, rather than being distal, are proximal predictors of early adolescent girls' social aggression one year later.

Positive family relations were hypothesized to influence social aggression due to several empirical studies in the overt aggression literature. Several studies showed that parent-child relationships consisting of little positive parental involvement were positively related to overt aggression, peer rejection, and antisocial behavior (Coie & Dodge, 1998; Dishion, 1990; Patterson et al., 1989). Additionally, children who experienced high levels of maternal affection (positive maternal interest) exhibited low levels of overt aggression or disruptive behavior (Brown et al., 2007; McFadyen-Ketchum et al., 1996). The finding that the relationship between positive family relations and social aggression continues to strengthen over the course of the year for girls may be due to the gender differences previously found in social aggression. As previously discussed indirect/relational/social aggression has been shown to be particularly relevant to girls' peer groups because when attempting to inflict harm on peers, children tend to engage in behaviors that are most likely to damage valued goals. Because girls typically focus on relational issues during social interaction, acts that harm social connections are likely to be particularly effective in girls' peer groups (Bjorkqvist et al., 1992; Crick & Grotpeter, 1995; Feshbach, 1969). Other studies have shown that coercive family relationships result in different outcomes for boys and girls, with boys' having a tendency to project aggression outward and girls' tendency to project it inward (Fagot & Leve, 1998; Zahn-Waxler, 1993), however this study did not examine social aggression. Maccoby (1998) suggested that persistent involvement in coercive family environments

may exacerbate already existing, normative gender differences in response to social challenge. These are some potential reasons for the gender difference in the relationship between positive family relations and social aggression over the course of a year.

In addition to the direct effect for girls, the path from positive family relations to symptoms of depression was significant for both boys and girls. Interestingly, this path was significantly stronger for boys than for girls. Although it is not clear why the contribution of family relations to depressive symptoms was stronger for boys, it may be due to our study examining depressive symptoms, rather than examining clinical levels of depression, which have typically been shown to be higher for girls. This is consistent with the finding that engaging in coercive family processes leads to increased internalizing symptoms, particularly depression (Compton et al., 2003; Davis et al., 2002). Poorer quality of family relationships have been consistently linked to depressed mood in adolescents (Dmitrieva et al., 2004; Essau, 2004; Barber & Buehler, 1996). Additionally, positive family relations had a significant negative effect on social evaluative anxiety for boys and girls and this effect was not significantly different between boys and girls. This is consistent with previous research showing that perceived optimal parenting by both parents was related to low levels of social anxiety and depression (Durrell, LaVoie, & Mahoney, 2001; Massey, 2001). Despite the significant relationship of positive family relations to early adolescent social adjustment, there was no indirect effect of positive family relations on Wave 2 social aggression via depressive symptoms or social evaluative anxiety.

Maternal Psychological Control

Contrary to expectations, maternal psychological control did not have a significant direct or indirect effect on Wave 2 social aggression above and beyond Wave 1 social aggression. However, similar to parent-adolescent conflict maternal psychological control was significantly positively correlated with Wave 1 social aggression for both boys and girls suggesting this parenting variable may contribute to concurrent levels of social aggression, which in turn are relatively stable and unchanged over time. The relationship of Wave 1 social aggression to Wave 2 social aggression accounts for much of the variance making it difficult to find a significant effect from maternal psychological control to Wave 2 social aggression.

The finding that maternal psychological control is significantly related to Wave 1 social aggression is consistent with previous research showing that socially aggressive children had the most problematic relationship with their mothers, which were characterized by increased physical aggression and low levels of warmth (Grotpeter and Crick, 1997, as cited in Crick et al., 1999). Interestingly, maternal psychological control was more strongly associated with boys' Wave 1 social aggression than with girls'. This finding is somewhat similar to Crick's (2003) study, which found mother's use of psychological control significantly predicted 4th grade boys' future social aggression one year later, but had no effect on 4th grade girls' use of social aggression one year later. This study was different than the present study in that baseline levels of social aggression were not controlled for, however the same pattern of maternal psychological control being more relevant for boys' use of social aggression was exhibited. One possible reason for the boys' model showing a stronger relationship from maternal psychological

control to Wave 1 social aggression may be that parent gender and child gender plays an important role in aggression as Crick (2003) hypothesizes. Crick found that paternal-psychological control is more predictive of girls' social aggression and maternal-psychological control is more predictive of boys' social aggression.

Of note, maternal psychological control was significantly and similarly associated with boys' and girls' symptoms of depression. This finding is congruent with previous literature demonstrating that parental psychological control is related to internalizing symptoms, particularly depression and anxiety (Barber, 1996; Barber & Buehler, 1996; Siqueland et al., 1996). Surprisingly, however, maternal psychological control was not significantly related to social evaluative anxiety in this study as it was shown for girls in the Loukas et al. (2005) study. It could be that reduced positive family relations better captures the family dynamics that affect early adolescent social evaluative anxiety, as Loukas et al. did not include this variable in the study. Finally, similar to the other parenting variables, there were no indirect effects of maternal psychological control on Wave 2 social aggression via depressive symptoms or social evaluative anxiety. Therefore, the mediation hypothesis was not supported.

Family Structure

Family structure was examined in the current study given prior research indicating that the family environment of youth living in intact two-parent homes is more positive than of youth living in non-intact homes (Fitzpatrick, 1997; Vaden-Kiernan et al., 1995). Findings regarding family structure differences were mixed. Although youth from two-parent intact homes reported increased positive family relations, there were no differences between the two groups on parent-adolescent conflict or maternal

psychological control. Examination of the other study variables also revealed mixed findings with youth living in intact homes reporting less depressive symptoms and less social evaluative anxiety than their counterparts, but there were no differences between youth from intact versus non-intact families on Wave 1 or Wave 2 social aggression. Given that the majority of youth participating in the present research were living in intact homes (n = 353) and only a small number (n = 129) were not, it was not possible to examine differences in the model across the differing family structures. Nonetheless, future research should examine how the model varies across multiple family compositions. Given prior research showing that overt aggression varies across family composition (Vaden-Kiernan et al., 1995), it would be particularly important for researchers to determine how social aggression also varies. To date, no studies have examined family structure effects in the social aggression literature.

Early Adolescent Emotional Adjustment and Social Aggression

In contrast with much of the previous research on indirect/relational/social aggression, depressive symptoms and social evaluative anxiety did not significantly directly effect Wave 2 social aggression for boys and girls after controlling for Wave 1 social aggression. However, boys' and girls' Wave 1 levels of social aggression were significantly positively correlated to the error variance for depressive symptoms and the error variance for social evaluative anxiety. Error variances represent all other influences on the outcome variables other than those shown in the model (unmeasured variables); therefore Wave 1 levels of social aggression were related to depressive symptoms and social evaluative anxiety.

Previous research has shown a strong relationship between relational aggression and both internalizing and externalizing problems measured at one time point (Crick, 1997, Crick et al., 1997, Crick & Grotpeter, 1995) and even over the course of a year 4th graders peer-nominated relational aggression and internalizing symptoms tracked together by increasing in a linear fashion using hierarchical linear modeling (Murray-Close et al., 2007). However, the Murray-Close study used a younger age group and it may be that the relationship between depressive symptoms and social aggression stabilizes in early adolescence. Previous literature has also shown that elevated levels of social evaluative anxiety have been linked to a lower number of positive relationships (La Greca, 2001; La Greca & Lopez, 1998; Watson & Friend, 1969) and self-reported social aggression (Loudin et al., 2003; Loukas et al., 2005). However, no studies to date have investigated the relationship between social evaluative anxiety and social aggression over time. The relationship between these emotional functioning variables and Wave 2 social aggression did not change over the course of a year above and beyond the effect of Wave 1 social aggression. Controlling for baseline levels of social aggression likely made it difficult to find significant effect as the relationship with these emotional functioning variables and Wave 1 social aggression accounted for much of the variance.

Mediated Effects

In the current study, the paths to social aggression one year later after accounting for baseline social aggression were better explained by direct effects as opposed to mediated or indirect effects. Loeber and Stouthamer-Loeber (1998) had proposed that the development of aggression and antisocial behaviors in children might be more complex than once was thought. They found that multiple pathways to aggression might fit

equally as well as a single pathway and that gender largely influences how aggression evolves. In this study, the family relationship variables influence Wave 2 social aggression directly rather than indirectly through social evaluative anxiety and/or depressive symptoms. Competing models revealed a better fit of the model to the data when the family factors, depressive symptoms, and social evaluative anxiety all directly influenced subsequent social aggression one year later, rather than allowing for indirect effects via depressive symptoms and social evaluative anxiety. This suggests that the relationships between depressive and socially anxious symptoms and social aggression do not significantly change over time, although they are significantly related to social aggression at Wave 1.

Implications

Social aggression is a stable difficulty for boys and girls, confirming the need to determine the mechanisms for how this behavior is maintained over time. Results from this research indicated that although this form of aggression was relatively stable for boys and girls, the stability is slightly stronger for girls. This is not to say that intervention efforts should only target girls since both boys and girls exhibited significant stability in this behavior over time. However, this form of aggression may be more relevant for girls when wanting to inflict harm and may be perceived as more hurtful by girls (Bjorkqvist et al., 1992; Coyne et al., 2006; Crick & Grotpeter, 1995; Murray-Close et al., 2006). Overall, the current study failed to show significant effects between the family relationship variables and Wave 2 social aggression for boys. For girls, this study showed that positive family relations were significantly negatively related to Wave 2 social aggression. However, all of the family relationship variables in this study were

significantly correlated with Wave 1 social aggression, suggesting that negative family relations and maternal psychological control may contribute to baseline levels of social aggression, which in turn tend to be relatively stable over a one year period of time. Intervention and prevention efforts will therefore likely prove fruitful when aimed at increasing positive family relations and decreasing parent-adolescent conflict and maternal psychological control for both boys and girls, as all of these variables were either associated with social aggression either concurrently or longitudinally and have been consistently shown to reduce overt forms of aggression for boys (Hart et al., 1998; McFadyen-Ketchum, et al., 1996).

This study corroborated previous research on the deleterious effects of parent-adolescent conflict, less positive family relations, and maternal psychological control on depressive symptoms (Compton et al., 2003; Davis et al., 2002). Positive family relations were also shown to reduce social evaluative anxiety. However, there were no significant effects of depressive symptoms or social evaluative anxiety on Wave 2 social aggression, above and beyond their relationship with Wave 1 social aggression. One reason for the lack of findings between the mediators and the outcome is likely due to the strength of the relationship between the mediators and Wave 1 social aggression, as well as strong stability of social aggression across time, which all accounted for much of the variance in the model making it difficult to find significant effects. Additionally, these findings may indicate that the relationships between social evaluative anxiety, depression, and social aggression do not change over the course of a year for adolescent boys and girls.

This study emphasizes the importance of intervening at the level of the family system when wanting to improve overall adjustment of adolescent boys and girls.

Aspects of the family environment directly influenced emotional adjustment for boys and girls, as well as provide salient social modeling for relationships outside of the family. The quality of family interactions has been consistently shown to influence deviant peer relationships and intervening at the level of the family system has great potential to influence internalizing and externalizing behaviors of both boys and girls.

Limitations and Future Directions

This study revealed social aggression to be a stable and chronic problem for boys and girls over the course of one year. This signifies a need for more research in prevention and intervention for this problematic behavior. Past research has shown that intervention in the family dynamics of boys has been effective in reducing overt aggression and antisocial behaviors (Bank, Marlowe, Reid, Patterson, & Weinrott, 1991; Kazdin, Siegel, & Bass, 1992; Patterson, Chamberlain, & Reid, 1982). The current study indicates that a family approach to the prevention and intervention of social aggression may successfully reduce this behavior. Additionally, more research also needs to be conducted on prevention and intervention efforts focused at the level of the peer group. School based programs targeting peers relations have been another effective strategy to accomplish behavior change in this area (Fraser, Galinsky, Smokowski, Day, Terzian, Rose, & Guo, 2005). Future work should therefore not only focus on the development and manifestation of social aggression, but on intervention and prevention.

In this study, the factor loadings of the items social aggression measure on the latent variable of social aggression were not as high as have been previously shown in the literature. One potential reason that the factor loadings were less than what has been previously demonstrated in the literature is because this study utilized entirely self-report

data, which is a significant limitation. The four-item peer nomination instrument used in Crick and Grotpeter's (1995) original study of relational aggression revealed higher factor loadings, likely indicating a better measure of this type of behavior. More research needs to be conducted to evaluate the how to better measure social aggression. Peer nominations have been employed because social forms of aggression have been considered too subtle and too dependent on insider knowledge about the peer group fro those outside the group to reliably assess (Crick & Grotpeter, 1995). However, peer reports only allow for the study of social aggression at exceptionally high rates and adolescents may be more hesitant to write down others' names due to repercussions from their more aggressive peers. Self-report data allows for the study of social aggression at all levels and is obviously more convenient. Future research should aim to create a better self-report measure of social aggression.

It may be useful to follow children from an earlier age to determine how social aggression develops over time and whether developmental stage determines which aspects of social aggression are used at higher levels by boys and girls. The age group chosen for the current study has been shown to be the developmental stage where all of the variables in the study become increasingly relevant (Cairns et al., 1989). Social aggression is thought to peak due to the increased importance of peer groups and family relationships change as adolescents begin to find more independence leading to more potential for family discord and a reduction in cohesion (Cairns et al., 1989; Parker, Rubin, Price, & DeRosier 1995; Patterson, 1982). It would be beneficial to examine social aggression prior to the developmental stage of early adolescent to determine what facilitates in the development of this maladaptive behavior. It would also be useful to

examine this behavior following early adolescence to determine if social aggression naturally resolves over time or if the maladaptive behavior persists.

Another future area of study mentioned earlier would be to examine how family composition affects the development of social aggression. In the present study over 70% of the sample was from intact two-parent homes preventing separate analyses for each differing family composition. However, differing family structure resulted in mean level differences in positive family relations, depressive symptoms, and social evaluative anxiety. It is possible that the model would yield differing results for various family structures, which will be important in determining which adolescents are at highest risk for maladjustment and poor peer relationships. It would also be interesting to examine whether the presence of siblings in the home influences the development of social aggression.

A final future direction would be to examine race/ethnicity differences in the development of social aggression. In the present data collection, over 75% of the sample was white preventing separate analyses by race/ethnicity. Nonetheless, future studies should examine whether these processes differ across race/ethnicity, particularly since to date very few studies have examined this.

APPENDIX A

Self-Report Questionnaire Items

Parent-Adolescent Conflict Items

In the last week, how many times did the following things happen between you and at least one of your parents?

1. We argued at the dinner table.
2. We had a big argument over a little thing.
3. I got my way by getting angry.
4. One of us got so mad, we hit the other person.

Positive Family Relations Items

Think back over the last month. How true are the following statements for you and your parents?

1. I really enjoyed being with my parents.
2. My parents and I have gotten along very well with each other.
3. My parents trusted my judgment.
4. Family members really backed each other up.
5. There was a feeling of togetherness in our family.
6. The things we did together were fun and interesting.

Maternal Psychological Control Items

How much does the following describe your mother or primary caretaker?

1. My mother is always trying to change how I feel or think about things.
2. My mother changes the subject whenever I have something to say.
3. My mother often interrupts me.
4. My mother blames me for other family members' problems.
5. My mother brings up past mistakes when she criticizes me.
6. My mother is less friendly with me if I do not see things her way.
7. My mother will avoid looking at me when I have disappointed her.
8. If I have hurt her feelings, my mother stops talking to me until I please her again.

Social Evaluative Anxiety Items

The following questions ask about how you feel when you are with other kids. Please tell us how often each of the following happens:

1. How often do you worry about what other kids say about you?
2. How often do you feel that other kids talk about you behind your back?

3. How often do you worry about what other kids think of you?
4. How often do you worry that other kids don't like you?
5. How often do you feel that kids are making fun of you?
6. How often are you afraid that other kids will not like you?
7. If you get into an argument around another kid, how often do you worry that he or she won't like you?
8. How often do you worry about being teased?

Depressive Symptoms Items

Now we want to know about you and your feelings. From each group of 3 sentences please pick one sentence that describes you best for the past 2 weeks.

1. A. I am sad once in a while
   B. I am sad many times
   C. I am sad all the time

2. A. Nothing will ever work out for me
   B. I am not sure if things will work out for me
   C. Things will work out for me o.k.

3. A. I do most things o.k.
   B. I do many things wrong
   C. I do everything wrong

4. A. I have fun in many things
   B. I have fun in some things
   C. Nothing is fun at all

5. A. I am bad all the time
   B. I am bad many times
   C. I am bad once in a while

6. A. I think about bad things happing to me once in a while
   B. I worry that bad things will happen to me
   C. I am sure that terrible things will happen to me

7. A. I hate myself
   B. I do not like myself
   C. I like myself

8. A. All bad things are my fault
   B. Many bad things are my fault
   C. Bad things are usually not my fault

9. A. I feel like crying every day

B. I feel like crying many days
C. I feel like crying once in a while

10. A. Things bother me all the time
B. Things bother me many times
C. Things bother me once in a while

11. A. I like being with people
B. I do not like being with people many times
C. I do not want to be with people at all

12. A. I cannot make up my mind about things
B. It is hard to make up my mind about things
C. I make up my mind about things easily

13. A. I look o.k.
B. There are some bad things about my looks
C. I look ugly

14. A. I have to push myself all the time to do my schoolwork
B. I have to push myself many times to do my schoolwork
C. Doing schoolwork is not a big problem

15. A. I have trouble sleeping every night
B. I have trouble sleeping many nights
C. I am sleep pretty well

16. A. I am tired once in a while
B. I am tired many days
C. I am tired all the time

17. A. Most days I do not feel like eating
B. Many days I do not feel like eating
C. I eat pretty well

18. A. I do not worry about aches and pains
B. I worry about aches and pains many times
C. I worry about aches and pains all the time

19. A. I do not feel alone
B. I feel alone many times
C. I feel alone all the time

20. A. I never have fun at school
B. I have fun at school only once in a while
C. I have fun at school many times

21. A. I have plenty of friends
    B. I have some friends, but I wish I had more
    C. I do not have any friends

22. A. My schoolwork is alright
    B. My schoolwork is not as good as before
    C. I do very badly in subjects I used to be good in

23. A. I can never be as good as other kids
    B. I can be as good as other kids if I want to
    C. I am just as good as other kids

24. A. Nobody really loves me
    B. I am not sure if anybody loves me
    C. I am sure that somebody loves me

25. A. I usually do what I am told
    B. I do not do what I am told most times
    C. I never do what I am told

26. A. I get along with people
    B. I get into fights many times
    C. I get into fights all the time

Social Aggression Items

Please tell us how often each of the following happens:

1. When you're mad at someone, how often do you get even by excluding them from your group of friends?
2. How often do you tell your friends you will stop liking them unless they do what you say?
3. When you're mad at someone, how often do you ignore them or stop talking to them?
4. How often do you exclude some kids from your group of friends?
5. How often do you roll your eyes at other kids?
6. How often do you make mean faces at other kids to hurt their feelings?

APPENDIX B

Wave 1 Consent Form

PARENT CONSENT FORM
Promoting Positive Peer Interactions
The University of Texas at Austin

Dear Middle School Parent:

Your child is invited to participate in a study of middle school children's peer interactions and well-being. We are Alexandra Loukas and Sheri Robinson, professors in the College of Education at the University of Texas at Austin.

We are asking for permission to include your child in this study because we are hoping to gain a better understanding of 6th and 7th grade students' peer interactions and the implications of their interactions on their own well-being and on overall school climate. We expect to have approximately 1200 participants in the study, which is the number of 6th and 7th grade students attending the three middle schools in Xxx.

If you allow your child to participate, he or she will be asked to complete a 161-item questionnaire. The questionnaire will be completed during your child's homeroom class on October 9 and will take approximately 40 minutes to complete. The questionnaire asks students about the types of behaviors they engage in on a day-to-day basis and also about their relationships with their peers and families. We hope that your child will be able to tell us about his or her friendships with classmates. If you decline to have your child participate, he or she will be involved in an alternative classroom activity during that homeroom period.

Students will be told that the homeroom classroom with the highest rate of returned consent forms (whether or not you allow your child to participate in the study) will receive a pizza party. Students in the classroom with the second highest rate of returned consent forms will have their names included in a draw to receive one of 5 movie theatre tickets and all students who participate in the study will receive UT pencils as compensation.

Any information that is obtained in connection with this study and that can be identified with your child will remain confidential and will be disclosed only with your permission. His or her responses will not be linked to his or her name or your name in any written or verbal report of this research project. Any reports that do result from this project will contain information that has been aggregated or averaged across all participating students. Your decision to allow your child to participate will not affect your or his or her present or future relationship with The University of Texas at Austin or Yyy Middle School.

Some adolescents may feel uncomfortable answering questions about their feelings and their relationships. Thus, all students will be told that they may skip any questions they feel uncomfortable answering. We believe, however, that all students will benefit from the information we obtain since it will help us understand the effects of peer relationships on adolescent adjustment and also overall school climate at Yyy. We hope to use this information to develop intervention programs to promote positive peer relations and improved school climate.

If you have any questions about the study, please ask one of us. If you have any questions later, call either Alexandra Loukas, Ph.D. at 232-9388 or Sheri Robinson, Ph.D. at 471-4407. If you have any questions or concerns about your child's participation in this study, call Professor Clarke Burnham, Chair of the University of Texas at Austin Institutional Review Board for the Protection of Human Research Participants at 232-4383.

Please return 1 signed form to your child's homeroom teacher by September 14. You may keep the other copy of this consent form.

You are making a decision about allowing your child to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. If you later decide that you wish to withdraw your permission for your child to participate in the study, simply tell either of us. You may discontinue his or her participation at any time.

Please return the signed form to your child's homeroom teacher.

_____
Printed Name of Child

_____ _____
Signature of Parent(s) or Legal Guardian Date

_____ _____
Signature of Investigator Date

Sign here if you *do NOT* want your child to participate in the study

_____.

APPENDIX C

Wave 2 Consent Form

Promoting Positive Peer Interactions

Dear Middle School Parent:

Your child is invited to participate in a study of middle school children's peer interactions and well-being. We are Alexandra Loukas and Sheri Robinson, professors in the College of Education at the University of Texas at Austin.

We are once again asking for permission to include your child in this study because we are hoping to gain a better understanding of $7^{th}/8^{th}$ grade students' peer interactions and the implications of their interactions on their own well-being and on overall school climate. We expect to have approximately 1200 participants in the study, which is the number of 7^{th} and 8^{th} grade students attending the three middle schools in Georgetown.

If you allow your child to participate, he or she will be asked to complete a 160-item questionnaire, similar to the one completed by participating students last year. The questionnaire will be completed during your child's homeroom class twice across two years. Once in December of this year (2002) and once in December of next year (2003). The survey will take approximately 40 minutes to complete. The questionnaire asks students about the types of behaviors they engage in on a day-to-day basis and also about their relationships with their peers and families. We hope that your child will be able to tell us about his or her friendships with classmates. If you decline to have your child participate, he or she will be involved in an alternative classroom activity during that homeroom period.

Any information that is obtained in connection with this study and that can be identified with your child will remain confidential and will be disclosed only with your permission. His or her responses will not be linked to his or her name or your name in any written or verbal report of this research project. Any reports that do result from this project will contain information that has been aggregated or averaged across all participating students. Your decision to allow your child to participate will not affect your or his or her present or future relationship with The University of Texas at Austin or Yyy Middle School.

Some adolescents may feel uncomfortable answering questions about their feelings and their relationships. Thus, all students will be told that they may skip any questions they feel uncomfortable answering. We believe, however, that all students will benefit from the information we obtain since it will help us understand how the effects of peer relationships change over time and how these changes influence adolescent adjustment and also overall school climate. We hope to use this information to develop intervention programs to promote positive peer relations and improved school climate.

If you have any questions about the study, please ask one of us. If you have any questions later, call either Alexandra Loukas, Ph.D. at 232-9388 or Sheri Robinson, Ph.D. at 471-4407. If you have any questions or concerns about your child's participation in this study, call Professor Clarke Burnham, Chair of the University of Texas at Austin Institutional Review Board for the Protection of Human Research Participants at 232-4383.

Please return 1 signed form to your child's homeroom teacher. Students will be told that the homeroom class with the highest rate of returned consent forms (whether or not you allow your child to participate in the study) will receive a pizza party. All students who participate in the study will receive a UT pencil.

You may keep the other copy of this consent form.

You are making a decision about allowing your child to participate in this study. *Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study*. If you later decide that you wish to withdraw your permission for your child to participate in the study, simply tell either of us. You may discontinue his or her participation at any time.

Please return the signed form to your child's homeroom teacher.

_____
Printed Name of Child

_____ _____
Signature of Parent(s) or Legal Guardian Date

_____ _____
Signature of Investigator Date

Sign here if you *do NOT* want your child to participate in the study

_____.

APPENDIX D

Adolescent Assent Form

Promoting Positive Peer Interactions
The University of Texas at Austin

I agree to be in a study about my relationships with other kids my age, my family, and how comfortable I feel at my school. This study was explained to my mother/father/parents/guardian and she/he/they said that I could be in it. The only people who will know about what I say and do in the study will be the people in charge of the study.

In the study I will be answering questions about the types of things that I do on a day-to-day basis at home and at school and also about how I get along with other kids in my class.

Writing my name on this page means that the page was read (by me/to me) and that I agree to be in the study. I know what will happen to me. If I decide to quit the study, all I have to do is tell the person in charge.

_____ _____

Youth's Signature Date

_____ _____

Signature of Researcher Date

REFERENCES

Abidin, R. R., Jenkins, C. L., & McGaughey, M. C. (1992). The relationship of early family variables to children's subsequent behavioral adjustment. *Journal of Clinical Child Psychology, 21,* 60-69.

Achenbach, T. M., McCouaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101,* 213-232.

Arbuckle, J. L. (2003). *Amos 5.0 update to the Amos user's guide.* Chicago: Smallwaters.

Arbuckle, J. L., & Wothke, W. (1999). *Amos 4.0 user's guide.* Chicago: Smallwaters.

Archer, J. (2001). A strategic approach to aggression. *Social Development 10*(2), 267-271.

Bank, L., Marlowe, J. H., Reid, J. B., Patterson, G. R, & Weinrott, M. R. (1991). A comparative evaluation of parent-training interventions for families of chronic delinquents. *Journal of Abnormal Child Psychology, 19,* 15-33.

Barber, B. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67,* 3296-3319.

Barber, B. & Buehler, C. (1996). Family cohesion and enmeshment: Different constructs, different effects. *Journal of Marriage and the Family, 58,* 433-441.

Barber, B. & Harmon, E. (2002). Violating the self: Parental psychological control of children and adolescents. In B. K. Barber (Ed.), *Intrusive parenting: How*

psychological control affects children and adolescents (pp. 15-52). Washington, DC: American Psychological Association.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Bjorkqvist, K. (1994). Sex differences in physical, verbal, and indirect aggression: A review of recent research. *Sex Roles: A Journal of Research, 30,* 177-212.

Bjorkqvist, K. (2001). Different names, same issue. *Social Development, 10,* 272-274.

Bjorkqvist, K., Lagerspetz, K. M. J., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior, 18,*117-127.

Bjorkqvist, K., & Niemela, P. (1992). *Of mice and women: Aspects of female aggression.* San Diego, CA: Academic Press.

Bjorkqvist, K., Osterman, K., & Kaukiainen, A. (2000). Social intelligence – empathy = aggression? *Aggression and Violent Behavior, 5*, 191-200.

Block, J. H. (1983). Differential premises arising from differential socialization of the genders: Some conjectures. *Child Development,, 54,* 1335-1354.

Boulton, M. J. & Underwood, K. (1992) Bully/victim problems among middle school children. *British Journal of Educational Psychology, 62,* 73-87.

Brown, S. A., Arnold, D. H., Dobbs, J., & Doctoroff, G. L. (2007). Parenting predictors of relational aggression among Puerto Rican and European American school-age children. *Early Childhood Research Quarterly, 22,* 147-159.

Cairns, Cairn, Neckerman, Ferguson, & Gariepy (1989). Growth and aggression: 1. childhood to early adolescence. *Developmental Psychology, 25,* 320-330.

Chung, T. Y., & Asher, S. R. (1996). Children's goals and strategies in peer conflict situations. *Merrill-Palmer Quarterly, 42,* 125-147.

Clark, D. M. & Wells, A. (1995). A cognitive model of social phobia. In: R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier, FR (Eds.) *Social phobia: Diagnosis, assessment and treatment* (pp. 69-93). New York: Guilford Press.

Coie, J. D., & Dodge, K. A. (1983). Continuities and changes in children's social status: A five-year longitudinal study. *Merrill-Palmer Quarterly, 29,* 261-282

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In N. Eisenberg (Ed.), *Social, emotional, and personality development* (5th ed., Vol 3, pp. 779-862). New York: Wiley & Sons.

Compton, K., Snyder, J., Schrepferman, L., Bank, L., & Wu Shortt, J. (2003). The contribution of parents and siblings to antisocial and depressive behavior in adolescents: A double jeopardy coercion model. *Development and Psychopathology, 15,* 163-182.

Connolly, I. & O'Moore, M. (2003). Personality and family relations of children who bully. *Personality and Individual Differences, 35,* 559-567.

Coyne, S. M., Archer, J., & Eslea, M. (2006). "We're not friends anymore! Unless…": The frequency and harmfulness of indirect, relational, and social aggression. *Aggressive Behavior, 32,* 294-307.

Crain, M. M. (2002). *The relationship of intent attributions, goals, and outcome expectancies to relationally aggressive behavior in pre-adolescent girls.* Unpublished doctoral dissertation, California School of Professional Psychology, San Diego, CA.

Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology, 7,* 313-322.

Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development, 67,* 2317-2327.

Crick, N. R. (1997). Engagement in gender normative versus nonnormative forms of aggression: Links to social-psychological adjustment. *Developmental Psychology, 33,* 610-617.

Crick, N. R. (2003). A gender-balanced approach to the study of childhood aggression and reciprocal family influences. In A. C. Crouter & A. Booth (Eds.), *Children's influence on family dynamics: The neglected side of family relationships* (pp. 229-235). Mahwah, N.J.: Lawrence Erlbaum Associates.

Crick, N. R., & Bigbee, M. A. (1998). Relational and overt forms of peer victimization: A multiinformant approach. *Journal of Consulting and Clinical Psychology, 66,* 337-347.

Crick, N. R., Bigbee, M. A., & Howes, C. (1996). Gender differences in children's normative beliefs about aggression: How do I hurt thee? Let me count the ways. *Child Development, 67,* 1003-1014.

Crick, N. R., Casas, J. F., & Ku, H. (1999). Relational and physical forms of peer victimization in preschool. *Developmental Psychology, 35,* 376-385.

Crick, N. R., Casas, J. F., & Mosher, M. (1997). Relational and overt aggression in preschool. *Developmental Psychology, 33,* 579-588.

Crick, N. R. & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115,* 74-101.

Crick, N. R. & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development, 67,* 993-1002.

Crick, N. R. & Grotpeter, J. K. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development, 66,* 710-722.

Crick, N. R. & Grotpeter, J. K. (1996). Children's treatment by peers: Victims of relational and overt aggression. *Development and Psychopathology, 8,* 367-380.

Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer provocations. *Child Development, 73,* 1134-1142.

Crick, N. R. & Ladd, G. W. (1990). Children's perceptions of the outcomes of aggressive strategies: Do the ends justify being mean? *Developmental Psychology, 26,* 612-620.

Crick, N. R. & Ladd, G. W. (1993). Children's perceptions of their peer experiences: Attributions, loneliness, social anxiety, and social avoidance. *Developmental Psychology, 29,* 244-254.

Crick, N. R., Ostrov, J. M., & Burr, J. E. (2006). A longitudinal study of relational and physical aggression in preschool. *Journal of Applied Developmental Psychology, 27,* 254-268.

Crick, N. R., Wellman, N. E., Casas, J. F., O'Brien, K. M., Nelson, D. A., Grotpeter, J. K., & Markon, K. (1999). Childhood aggression and gender: A new look at an old problem. In D. Bernstein (Ed.), *Gender and motivation* (Vol. 45, pp. 74-141). Lincoln, NE: University of Nebraska Press.

Crick, N. R. & Werner, N. E. (1998). Response decision processes in relational and overt aggression. *Child Development, 69,* 1630-1639.

Cummings, E. M. (1994). Marital conflict and children's functioning. *Social Development, 3,* 16-36.

Davidson, J.R.T., Hughes, D.L., George, L.K., & Blazer, D.G. (1993). The epidemiology of social phobia: Findings from the Duke Epidemiological Catchment Area Study. *Psychological Medicine, 23,* 709-718.

Davis, B., Sheeber, L., &Hops, H. (2002). Coercive family processes and adolescent depression. In G. R. Patterson, J. R. Reid, & J. Snyder (Eds.), *The Oregon model of antisocial behavior: Research and interventions* (pp. 173-194). Washington, DC: APA Press.

Dishion, T. (1990). The family ecology of boys' peer relations in middle childhood. *Child Development, 61,* 874-892.

Dishion, T. & Andrews, D. (1995). Preventing escalation in problem behaviors with high-risk young adolescents: Immediate and 1-year outcomes. *Journal of Consulting and Clinical Psychology, 63,* 538-548.

Dmitrieva, J., Chen, C., Greenberger, E., & Gil-Rivas, V. (2004). Family relationships and adolescent psychosocial outcomes: Converging findings from eastern and western cultures. *Journal of Research on Adolescence, 14,* 425-447.

Dodge, K. A. & Crick, N. R. (1990). Social information-processing bases of aggressive behavior in children. *Personality and Social Psychology Bulletin, 16,* 8-22.

Dodge, K. A. & Somberg, D. R. (1987). Hostile attributional biases among aggressive boys are exacerbated under conditions of threats to the self. *Child Development, 58,* 213-224.

Durell, J. H, LaVoie, J. C., & Mahoney, M. (2001). Interparental conflict and family cohesion: Predictors of loneliness, social anxiety, and social avoidance in late adolescence. *Journal of Adolescent Research, 16,* 304-318.

Eddy, J. M., Leve, L. D., & Fagot, B. I. (2001). Coercive family processes: A replication and extension of Patterson's coercion model. *Aggressive Behavior, 27,* 14-25.

Essau, C. A. (2004). The association between family factors and depressive disorders in adolescents. *Journal of Youth and Adolescence, 33,* 365-372.

Fagot, B. I. & Leve, L. D. (1998). Teacher ratings of externalizing behavior at school entry for boys and girls: Similar early predictors and different correlates. *Journal of Child Psychology and Psychiatry, 39,* 555-556.

Feshbach, N. D. (1969). Sex differences in children's modes of aggressive responses toward outsiders. *Merrill-Palmer Quarterly, 15,* 249-258.

Fitzpatrick, K. M. (1997). Fighting among America's youth: A risk and protective factors approach. *Journal of Health and Social Behavior, 38,* 131-148.

Fraser, M. W., Galinsky, M. J., Smokowski, P. R., Day, S. H., Terzian, M. A., Rose, R. A., & Guo, S. (2005). Social information-processing skills training to promote social competence and prevent aggressive behavior in the third grade. *Journal of Consulting and Clinical Psychology, 73,* 1045-1055.

French, D. C., Jansen, E. A., & Pidada, S. (2002). United States and Indonesian children's and adolescents' reports of relational aggression by disliked peers. *Child Development, 73,* 1143-1150.

French, D. C., & Waas, G. A., (1985). Behavior problems of peer-neglected and peer-rejected elementary-age children: Parent and teacher perspectives. *Child Development, 56,* 246-252.

Galen, B. R. & Underwood, M. K. (1997). A developmental investigation of social aggression among children. *Developmental Psychology, 33,* 589-600.

Gottman, J. (1986). Merging social cognition and behavior. *Monographs of the Society for Research in Child Development, 51* (2, Serial No. 213).

Gottman, J. M., & Katz, L. F. (1989). Effects of marital discord on young children's peer interaction and health. *Developmental Psychology, 25*, 373-381.

Greenberg, L. S., & Safran, J. D. (1984). Integrating affect and cognition: A perspective on the process of therapeutic change. *Cognitive Therapy and Research, 8,* 559-578.

Greener, S. & Crick, N. R. (1999). Normative beliefs about prosocial behavior in middle childhood: What does it mean to be nice? *Social Development, 8,* 349-363.

Griffin, K. W., Botvin, G. J., Scheier, L. M., Diaz, T., & Miller, N. L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among

urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaivors, 14,* 174-184.

Grotpeter, J. K. & Crick, N. R. (1996). Relational aggression, overt aggression, and friendship. *Child Development, 67,* 2328-2338.

Harre, R. & Lamb, R. (1983). *The encyclopedic dictionary of psychology*. Great Britain: Basil Blackwell Publisher Limited.

Hart, C. H., Ladd, G. W., & Burleson, B. R. (1990). Children's expectations of the outcomes of social strategies: Relations with sociometric status and maternal disciplinary styles. *Child Development, 61,* 127-137.

Hart, C. H., Nelson, D. A., Robinson, C. C., Olsen, S. F., & McNeilly-Choque, M. K. (1998). Overt and relational aggression in Russian nursery-school-age children: Parenting style and marital linkages. *Developmental Psychology, 34,* 687-697.

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1-55.

Inderbitzen-Nolan, H. M. & Walters, K. S. (2000). Social anxiety scale for adolescents: Normative data and further evidence of construct validity. *Journal of Clinical Child Psychology, 29(3),* 360-371.

Jaycox, L. & Repetti, R. (1993). Conflict in families and the psychological adjustment of preadolescent children. *Journal of Family Psychology, 7,* 344-355.

Kashdan, T. B., & Herbert, J. D. (2001). Social anxiety disorder in childhood and adolescence: Current status and future directions. *Clinical Child and Family Psychology Review, 4,* 37-61.

Katz, L. F. & Gottman, J. M. (1993). Patterns of marital conflict predict children's internalizing and externalizing behaviors. *Developmental Psychology, 29,* 940-950.

Kaukiainen, A., Bjorkqvist, K., Lagerspetz, K., Osterman, K., Salmivalli, C., Rothberg, S., Ahlbom, A. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive Behavior, 25,* 81-89.

Kazdin, A. E., Siegel, T. C., & Bass, D. (1992). Cognitive problem-solving skills training and parent management training in the treatment of antisocial behavior in children. *Journal of Consulting and Clinical Psychology, 60,* 733-747.

Keith, T. Z. (2006). *Multiple regression and beyond.* Boston, MA: Pearson Education, Inc.

Kovacs, M. (1985). The Children's Depression Inventory. *Psychopharmacology Bulletin, 21,* 995-998.

La Greca, A. M. (2001). Friends or foes? Peer influences on anxiety among children and adolescents. In: W. K. Silverman & P. D. A. Treffers (Eds.), *Anxiety disorders in children and adolescents: Research, assessment, and intervention* (pp. 159-187). Cambridge, U.K: Cambridge University Press.

La Greca, A. M., Dandes, S. K., Wick, P., Shaw, K., & Stone, W. L. (1988). Development of the social anxiety scale for children: Reliability and concurrent validity. *Journal of Clinical Child Psychology, 17,* 84-91.

La Greca, A. M. & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Psychology, 26(2),* 83-94.

La Greca, A. M. & Stone, W. L. (1993). The Social Anxiety Scale for Children-Revised: Factor structure and concurrent validity. *Journal of Clinical Child Psychology, 22,* 17-27.

Loeber, R., & Stouthamer-Loeber, M. (1998). Development of juvenile aggression and violence: Some common misconceptions and controversies. *American Psychologist, 53,* 242-259.

Loudin, J., Loukas, A, & Robinson, S. (2003). Relational aggression in college students: Examining the roles of social anxiety and empathy. *Aggressive Behavior, 29,* 430-439.

Loukas, A., Paulos, S., & Robinson, S. (2005). Early adolescent social and overt aggression: Examining the roles of social anxiety and maternal psychological control. *Journal of Youth and Adolescence, 34,* 335-345.

Maccoby, E. E. (1998). *The two sexes: Growing up apart, coming together.* Cambridge, MA: Harvard University Press.

Maccoby, E. E., & Jacklin, C. N. (1980). Sex differences in aggression: A rejoinder and reprise. *Child Development, 51,* 964-980.

Massey, C. (2001). Parent and sibling relationship influences on late adolescent social anxiety and other adjustment outcomes (Doctoral dissertation, University of West Virginia, 2001). *Dissertation Abstracts International, 62,* 1116.

Matthews, B. A. & Norris, F. H. (2002). When is believing seeing? Hostile attribution bias as a function of self-reported aggression. *Journal of Applied Social Psychology, 32,* 1-32.

McFadyen-Ketchum, S., Bates, J., Dodge, K., & Pettit, G. (1996). Patterns of change in early childhood aggressive-disruptive behavior: Gender differences in predictions from early coercive and affectionate mother-child interactions. *Child Development, 67,* 2417-2433.

Metzler, C. W., Biglan, A., Ary, D. V., & Fuzhong, L. (1998). The stability and validity of early adolescents' reports of parenting constructs. *Journal of Family Psychology, 12,* 600-619.

Moos, R. H. & Moos, B. S. (1986). *Family Environment Scale manual* (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.

Morris, A. S., Silk, J. S., Steinberg, L., Sessa, F. M., Avenevoli, S., & Essex, M. J. (2002). Tempermental vulnerability and negative parenting as interacting predictors of child adjustment. *Journal of Marriage and the Family, 64,* 461-471.

Murray-Close, D., Crick, N.R., & Galotti, K. M. (2006). Children's moral reasoning regarding physical and relational aggression. *Social Development, 15,* 345-372.

Murray-Close, D., Ostrov, J. M., & Crick, N. R. (2007). A short-term longitudinal study of growth of relational aggression during middle childhood: Associations with gender, friendship intimacy, and internalizing problems. *Development and Psychopathology, 19,* 187-203.

Nasby, W., Hayden, B., & DePaulo, B. M. (1980). Attributional bias among aggressive boys to interpret unambiguous social stimuli as displays of hostility. *Journal of Abnormal Psychology, 89,* 459-468.

Nelson, D. A., & Crick, N. R. (1999). Rose colored glasses: Examining the social information-processing of prosocial young adolescents. *Journal of Early Adolescence, 19,* 17-38.

Nelson, D. A., & Crick, N. R. (2002). Parental psychological control: Implications for childhood physical and relational aggression. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 15-52). Washington, DC: American Psychological Association.

Oman, R. R., Vesely, S. K., & Aspy, C. B. (2005). Youth assets, aggression, and delinquency within the context of family structure. *American Journal of Health Behavior, 29,* 557-568.

Osterman, K., Bjorkqvist, K., Lagerspetz, K. M. J., Charpentier, S., Capara, G. V., & Pastorelli, C. (1999). Locus of control and three types of aggression. *Aggressive Behavior, 25,* 61-65.

Osterman, K., Bjorkqvist, K., Lagerspetz, K. M. J., Kaukiainen, A., Huesmann, L. R., &, Fraczek, A. (1994). Peer and self-estimated aggression and victimization in 8-year-old children from five ethnic groups. *Aggressive Behavior, 20,* 411-428.

Owens, L., Shute, R., & Slee, P. (2000). "Guess what I just heard": Indirect aggression among teenage girls in Australia. *Aggressive Behavior, 26,* 67-83.

Paquette, J. A., & Underwood, M. K. (1999). Gender differences in young adolescents' experiences of peer victimization: Social and physical aggression. *Merrill-Palmer Quarterly, 45,* 242-266.

Parker, J. G., Rubin, K. H., Price, J. M., & DeRosier, M. E. (1995). Peer relationships, child development, and adjustment: A developmental psychopathology

perspective. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology* (Vol. II). New York: Wiley.

Patterson, G. R. (1982). *Coercive family process.* Eugene, OR: Castalia.

Patterson, G. R., Chamberlain, P., & Reid, J. B. (1982). A comparative evaluation of a parent-training program. *Behavior Therapy, 13,* 638-650.

Patterson, G. R., Debaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist, 44,* 329-335.

Peleg-Popko, O. (2002). Bowen theory: A study of differentiation of self, social anxiety, and physiological symptoms. *Contemporary Family Therapy, 24,* 355-369.

Prinstein, M. J., Boegers, J., & Vernberg, E. M. (2001). Overt and relational aggression in adolescents: Social-psychological adjustment of aggressors and victims. *Journal of Clinical Child Psychology, 30,* 479-491.

Prinz, R. J., Foster, S., Kent, R. N., & O'Leary, K. D. (1979). Multivariate assessment of conflict in distressed and nondistressed mother-adolescent dyads. *Journal of Applied Behavior Analysis, 12,* 691-700.

Putallaz, M. (1987). Maternal behavior and children's sociometric status. *Child Development, 58,* 324-340.

Robertson, J. F. & Simons, R. L. (1989). Family factors, self-esteem, and adolescent depression. *Journal of Marriage and the Family, 51,* 125-138.

Rys, G. S. & Bear, G. G. (1997). Relational aggression and peer relations: Gender and developmental issues. *Merrill-Palmer Quarterly, 43,* 87-106.

Schaefer, E. S. (1965). Children's reports of parental behavior: An inventory. *Child Development, 36,* 413-424.

Sheeber, L. & Sorensen, E. (1998). Family relationships of depressed adolescents: A multimethod assessment. *Journal of Clinical Child Psychology, 27,* 268-277

Siqueland, L., Kendall, P. C., & Steinberg, L. (1996). Anxiety in children: Perceived family environments and observed family interaction. *Journal of Clinical Child Psychology, 25,* 225-237.

Slaby, R. G., & Guerra, N. G. (1988). Cognitive mediators of aggression in adolescent offenders: Assessment. *Developmental Psychology, 24,* 580-588.

Snyder, J. & Patterson, G. R. (1995). Individual differences in social aggression: A test of a reinforcement model of socialization in the natural environment. *Behavior Therapy, 26,* 371 – 391.

Sobel, M.E. (1986). Some new results on indirect effects and their standard errors in structural equation models. In N. Tuma (Ed.), *Sociological methodology* (pp. 159-186). San Francisco, CA: Jossey-Bass.

Stark, K. D., Humphrey, L. L., & Laurent, J. (1993). Cogntive, behavioral, and family factors in the differentiation of depressive and anxiety disorders during childhood. *Journal of Consulting and Clinical Psychology, 61,* 878-886.

Stevens, V., De Bourdeaudhuij, I., & Van Oost, P. (2002). Relationship of the family environment to children's involvement in bully/victim problems at school. *Journal of Youth and Adolescence, 31,* 419-428.

Stone, G., Buehler, C., & Barber, B. (2002). Interparental conflict, parental psychological control, and youth problem behavior. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 53-95). Washington, DC: American Psychological Association.

Sutton, J., Smith, P. K., & Swettenham, J. (1999). Social cognition and bullying: Social inadequacy or skilled manipulation? *British Journal of Developmental Psychology, 17,* 435-450.

Tomada, G., & Schneider, B. H. (1997). Relational aggression, gender, and peer acceptance: Invariance across culture, stability over time, and concordance among informants. *Developmental Psychology, 33,* 601-609.

Underwood, M. K, & Galen, B. R. (2001) Hopes rather than fears, admirations rather than hostilities: A response to Archer and Bjorkqvist. *Social Development, 10,* 275-280.

Underwood, M. K., Galen, B. R., & Paquette, J. A. (2001). Top ten challenges for understanding gender and aggression in children: Why can't we all just get along? *Social Development, 10,* 248-266.

Vaden-Kiernan, N., Ialongo, N. S., Pearson, J., & Kellam, S. (1995). Household family structure and children's aggressive behavior: A longitudinal study of urban elementary school children. *Journal of Abnormal Child Psychology, 23,* 553-568.

Watson, D. & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33,* 448-457.

Westenberg, P. M., Siebelink, B. M., & Treffers, P. D. A. (2001). Psychosocial developmental theory in relation to anxiety and its disorders. In W. K. Silverman & P. D. A. Treffers (Eds.), *Anxiety disorders in children and adolescents: Research, assessment, and intervention* (pp. 72-89). Cambridge: Cambridge University Press.

Werner, N. E., & Crick, N. R., (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of Abnormal Psychology, 108,* 615-623.

Werner, N. E. & Crick, N. R. (2004). Maladaptive peer relationships and the development of relational and physical aggression during middle childhood. *Social Development, 13*, 495-514.

Zahn-Waxler, C. (1993). Warriors and worriers: Gender and psychopathology. *Development and Psychopathology, 5,* 79-89.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist, 35,* 151-175.

Zimmer-Gembeck, M. J., Geiger, T. C., & Crick, N. R. (2005). Relational and physical aggression, prosocial behavior, and peer reactions: Gender moderation and bidirectional associations. *Journal of Early Adolescence, 25,* 421-452.

VITA

Stephanie Katherine Paulos was born in Salt Lake City, Utah on April 26, 1978, the daughter of Arthea Buckman Paulos and Peter Ernest Paulos. After receiving her diploma at East High School, Salt Lake City, Utah in 1995, she entered the University of Utah in Salt Lake City, Utah where she graduated in May, 1999 with a Bachelor of Arts degree in Psychology and Political Science. In August, 2001, she entered the doctoral program in School Psychology at the University of Texas at Austin. She received a Master of Arts from the University of Texas at Austin in May, 2005. She will complete her internship at the Kennedy Krieger Institute and the Johns Hopkins School of Medicine in June 2007.

Permanent address: 832 South Milton Avenue, Baltimore, Maryland 21224

This dissertation was typed by the author.